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FOR THE

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GATHERING COTTON BOLLS.—(*See page 395.*)

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The fitting of the ground for any crop is of the greatest importance. Wheat and rye, sown this month, require a rich, mellow soil. Well-rotted manure should be liberally applied, either before or after plowing. The more thoroughly this plant food is mixed through the soil, the quicker the young grain will obtain a vigorous growth. The harrow and roller need to be used until all the clods have been reduced to small size. The roller should not pass after the seed is sown, leaving the surface packed hard, in which state it will crust over after the first rain. The somewhat ridged surface left by the grain drill also helps to hold the snow, and prevent winter-killing. Only the best, plump grains of a superior variety of wheat should be sown. It is profitable to pay three times the market price for a fine quality of seed. The amount to be sown per acre depends much upon the thoroughness of preparation and the strength of the seed. Under the best conditions, only a few quarts of seed are needed, but, as a general rule, a bushel is sufficient, if sowed with a good drill. A light coat of rich and finely divided manure may be placed on the surface after sowing, with excellent effect. A heavy rain may closely follow upon the seeding, and therefore plow out the courses for the water at once.

The work in the root field consists in keeping the ground free from weeds, and pulling the superfluous roots for the cows. The great error in growing turnips, beets, etc., is in not thinning them sufficiently. White turnips may still be sown if the ground is rich. Potato stubble, treated with fine manure, will usually yield a paying crop. Early sown beets and mangels may be harvested this month. Place the roots in long heaps, with straw over them, and afterwards take them to the root cellar, or cover the heaps with earth, to protect the roots from freezing. The roots should not heat at any time while stored.

Cut Buckwheat before the frosts injure it. The grain shells easily, therefore the crop should be cut when the dew is on. After curing for a few days, the grain is ready to be threshed. Buckwheat, as it comes from the threshing machine, will heat badly if placed in large heaps; therefore spread the grain over the barn floor or other surface to dry. Beans are injured by heavy rains, and should be pulled and stacked so soon as they are ripe. In pulling, leave the vines in rows for a time to cure, and if a storm approaches, they can be placed in stacks around poles driven in the ground. A straw cover should be placed over each stack.

The earliest varieties of field corn will be ready for cutting this month. Corn should be cut so soon as the grain is glazed; the stalks are best for fodder if cut at this time. Seed corn should have been selected before this, but if not, let some of the best stalks stand uncut with their ears of corn for future planting. The shocking needs to be done with care. If the stalks are poorly set and improperly tied, the shocks fall, the grain and fonder both suffer, and the husking is more difficult. Willow or other twigs may be used for securely tying the shocks of corn.

Potatoes are best dug so soon as ripe. If left in the earth, they may start into growth or become affected with the much dreaded rot. It is well to sort the potatoes as they are gathered, excluding all unfit for the table.

Notes on Live Stock.

A run in the pasture at night is much relished by the work horses, but the regular ample stall feed should be given them before being turned out. The feet of horses are the most exposed parts, and should be carefully watched for any disorder which may come. The whole surface of the animal needs to be kept in a healthful condition by frequent sponging and grooming. Add a few drops of carbolic acid to the sponge-water. Colts need a few oats daily, and a shady pasture. Cows in milk should have a liberal feed, that they may not fall off now. Fodder corn is excellent to piece out the short pastures, and a good patch of it should be found on every dairy farm. A small quantity of bran or meal may be used with the fodder corn with profit. Do not forget that a plenty of cool, pure water is essential to each animal, especially as the herbage of the pasture does not now afford the abundant juices of the early spring growth.

Sheep may do good service in clearing up fields from which crops have been removed. They are fond of the leaves and small roots left in the root field after harvest. Ewes which are to bear lambs should have good feed, as this does much to insure strong offspring. Pigs need space for free movement, an abundance of fresh air, and good wholesome food without stint. A coat of whitewash applied to every part of the sty is very cleansing; it may be quickly applied through a force pump. Make the same application to the poultry house.

Not too Late for a Crop.

A most useful crop of turnips has been raised by sowing the seed even as late as the middle of September. Land that has been well manured for early potatoes, sweet corn, or other crop, may often give a heavy yield of turnips. For late sowing, the Red-top Strap-leaf is the best. There may be conditions in which it is advisable to sow broadcast, but, as a rule, it is vastly better to drill in the seed. Sheep raisers will find it profitable, even if they must sow broadcast and allow the sheep to harvest the crop themselves. Those who have a near market can more profitably dispose of the crop.

The Late Weeds.

It has been stated that Celery and several other crops of the garden, find this and the next month most favorable for their growth. The warm days, followed by cool nights, with abundant dews, bring them along at a rapid rate. The conditions most favorable for our crops, are equally so for the weeds, especially those like Purslane, belonging to warm countries. "Pussley," as it is usually called, how it does grow! We have no need to cultivate it, as is done in France. If it were only marketable, what crops could be supplied. A number of our weeds, though annuals, spring from the seed in autumn, and make compact, sturdy little plants. These pass the winter safely, and are ready to start into growth in the first warm days of spring. Shepherds' Purse is an example of this set of weeds, and it has a number of fellows.

Chickweed, especially in damp soils, grows the more rampantly the cooler the weather, and goes into winter quarters a stout plant, ready to bloom at any time in winter when the snow melts away, and will scatter its seeds in early spring. It is a mistake to stop the hoe and cultivator when the conspicuous summer weeds are subdued. The seedling weeds, in their state of rest, are not conspicuous, but they should be destroyed. They will appear in full force next spring, when there will be less time for disposing of them than now.

Tender Roses in Winter.

All of the perpetual blooming roses, the Teas, the Bengals, and others planted out for summer blooming, are tender. They must either be taken up for the winter, or protected, if they are to remain in the open ground. They are only half-hardy, but will survive if given a slight protection. If the stems are bent over and fastened by hooked pegs, and then covered with sods, they will usually come out next spring all right, and ready to bloom for another season.

Planting Dutch Bulbs.

When such bulbs as Hyacinths, Narcissuses, Tulips, and the like are planted, they at once form roots, and prepare for an early blooming in spring. Those who have to purchase such bulbs should procure them as early as they are offered by the dealers. Those who have a stock on hand from former years, should not delay the planting too long. The old rule, to cover the bulb with soil equal in depth to its own thickness, is a good one, When bulbs are planted early, they bloom all the stronger the next spring.

Planting Strawberries in September.

We have shown how strawberry runners may be struck in pots. Plants thus propagated may be set out at any time after they are well established. It would have been better to have planted them last month, but plants that have become well rooted in pots, and set out the present month, may be expected to give a fair return next spring. Plants which are taken up from the beds, may be planted in autumn, as the work is more conveniently and pleasantly done than in spring, but nothing will be gained in time.

The Carnation as a Window Plant.

A plant will not bloom continuously. If a Carnation which has been planted in the open border has flowered freely all summer, it is unfair to expect it to bloom through the winter. It should be prepared for winter blooming by depriving it of its buds during summer. If this has not been done, it will be well to cut off all the buds now visible upon the plants needed for winter blooming, and take them up before cool nights check their growth. Give the plants, after they have been taken up and potted, shade for several days; and when cool nights come, place them on a piazza, or where they will not be chilled.

Planting Onions in Autumn.

It is much better to plant onion sets in the fall than to wait until spring. Aside from the gain of time by doing it in autumn, the risk of keeping them in good condition is avoided. They should not be planted until next month, or until so late that the tops will not start into growth. At this season the soil is warm and mellow, and the work can be done with much more comfort than in spring. The sets will commence their growth very early, and be much in advance of those planted in spring. Those who wish to raise their own onion seed, should select the bulbs and plant them out in autumn, taking care to cover them with at least three inches of soil.

The Seeds of Hardy Perennials.

As a rule, the seeds of these, such as the Phloxes, the Pentstemons, and a long list of others, should be sown as soon as they are ripe. Usually, if kept until spring, they are slow to germinate, or fail altogether. Sown at once, the young plants soon appear, and if protected during the winter by laying a few evergreen boughs over them, they will be ready to set in place next spring, and will usually bloom the next summer. If it is not desired to save seed from any shrub or herbaceous plant; the sooner the flower cluster is cut away, after its beauty is past, the better. Seed-forming is exhaustive, and unless seeds are wanted, it is vastly better for a plant to cut away all flower clusters as soon as they have passed their prime.

Keeping Plants in Winter.

One of our friends, whose grounds in summer are decorated with Agaves and many other tender plants, has a cave dug in a bank, in which he stores these plants for the winter. Every one can not have such a cave, but most persons can have the use of a cellar, in which tender plants can be stored during the winter months. Agaves, India-rubber Trees, Dracænas, and the like, as well as Oleanders and other plants, ornamental in summer, can be put away for the winter in the cellar. They need to be kept perfectly dormant, but should not get too dry. If the soil is fairly moist when they are stored away for the winter, they may not need any care until towards spring, when they should be examined, and water given, if needed.

Raspberries and Blackberries.

It should be kept in mind that a stem of raspberry or blackberry, that has once borne a crop of fruit, has served its purpose, and will die. These stems will be replaced by a new growth, which will perfect itself this autumn, and be ready to produce a crop of fruit next summer. Therefore it is better to get the old stems out of the way, as soon as the fruit is off. More new shoots, or suckers, than are needed will grow. Two, or at most three, are all that are required to a stool; all beyond these should be cut away as if they were weeds. Those which are allowed to grow, should be tied up to stakes or a trellis, as soon as large enough. Their upward growth should be stopped, by pinching the growing point, at five feet for blackberries and three for raspberries.

Plants for Next Spring.

Those who are not versed in the ways of market-gardeners, are not aware that the seeds for the early crop of cabbages, cauliflowers, and lettuce, are sown in autumn. The plants, protected through the winter in cold frames, are set out very early the following spring. It is useless for one to expect to have these vegetables early in the market, unless he adopts the method that years of experience has shown to be the safe one. The seeds are sown in autumn in the open ground; the young plants, grown to the proper size, are planted out in cold frames, where they are kept dormant, and at the same time protected from severe changes of temperature. They are set out very early the following spring. The time for sowing the seeds to produce plants which are to be wintered, is of great importance. If sown too soon, the plants will be too large, and if too late, they will not be strong enough. After a long experience in the climate of New York, Mr. Peter Henderson has found it safest to sow twice. Once on the twelfth and again on the sixteenth of September, and would prefer to sow later than the last named date, rather than earlier. Of course, the time of sowing must vary with each locality, the object being to have strong plants, ready for the cold frames, in four or five weeks after the seeds are sown. Farmers and others, who wish to have the earliest cabbages for market, should adopt this method. Sow the seeds this month; prick out the young plants next month into cold frames, and keep them dormant through the winter, until they can be set out next spring.

In the Cotton Field.

The cotton crop is liable to so many injuries that it is, especially in its early stages, a source of anxiety to the planter. Late frosts and cold driving rains often prevent his getting a good stand, and if obliged to replant, the crop may be so late, that it is caught at the other end of the season by the early frosts of autumn. After the plants are fairly established, they may become the prey of various insects. The cotton worm will come in hordes upon the foliage, completely riddling, or as the planters say, "ragging it," and poison must be used, or the crop, if not lost, will be greatly diminished. Scarcely less destructive is the Boll-worm, which hatches from an egg laid in the blossom, and enters the very young boll; when it finds that the boll is about to fall, on account of the injury it inflicts, its instinct warns it to leave, and enter another and more advanced boll, and so it goes on, destroying one after another as it works its unseen mischief. If the plants have escaped serious damage from insects and other causes, the cotton field, at the time ripening commences, presents a most pleasing sight. The mature bolls break open, and the soft fibre of snowy whiteness, relieved from the confinement in which it had been held, by its own elasticity enlarges to many times its former bulk, each boll seeming to overflow with its abundance of the precious staple, which gleams in the sunlight in marked contrast with the dark green of the foliage. That cotton picking should be a season of jollity, when the crop was produced by slave labor, is not surprising, as it marked the end of months of toil, and was an assurance that the reward had come at last. All hands, women and children, as well as men, brought the aid of their nimble fingers to gather the treasure yielded by the opening bolls. The pictures of "Cotton Picking," formerly showed the field alive with the dusky forms of the pickers. Our artist's picture is very different, showing but two children and these of a different race, attracted by the beauty and novelty of the cotton field. Was the sketch intended to typify the change that is coming over cotton culture, and to indicate that white labor would, in time, seek the cotton fields to help in picking? To be prophetic, the artist should have shown the children watching the operation of that cotton-picking machine, yet in the brain of some inventor, which is now earnestly hoped for, and while its advent will deprive the cotton field of its picturesque features, will bring to the harvest the mechanical aid so successfully applied in harvesting other important crops. This picker is sure to come, and it is not too much to hope that children like these may live to see the same revolution in the cotton harvest that our skillful mechanics have wrought in the harvest of our immense grain crop.

Remedy for Hen Lice.

One of the most pestilential visitations in the hen house is lice; abundant at any time from May until frost comes. They do not confine their presence to their own quarters. If in the vicinity, they invade the pig sty, the carriage house, the horse and cow stable. The horse and his rider are both likely to be covered with this minute pest. They do not trouble the farmer's hen roost always, for the hens as a rule have the freedom of the premises, roost in the apple trees by night, and wallow in unlimited dust by day, which effectually rasps off the vermin. But many must confine their hens in narrow quarters during the growing season, if they keep them at all, and these creatures come upon them by stealth. Do you suggest fumigation by tobacco, or by sulphur? What if your hennery is complete in its ventilation, and without a door? It will not hold smoke. Do you advise whitewash and thorough cleansing? That is a big job. Kerosene is now in almost every man's house, and this cheap agent will make you master of the situation. Saturate every box, perch, and beam in the establishment, and the job is done. Use the lamp filler carefully, and much trouble will be avoided.

Merinos Then and Now.

It is not worth while for us to neglect our Merino flocks, even though the Government should admit wool and woolens duty free. True, indeed, there are parts of the country where wool-growing will not pay, but we may console ourselves with the thought that mutton-raising will be remunerative, and that the wool of the mutton breeds will help to put the balance on the credit side of the ledger.

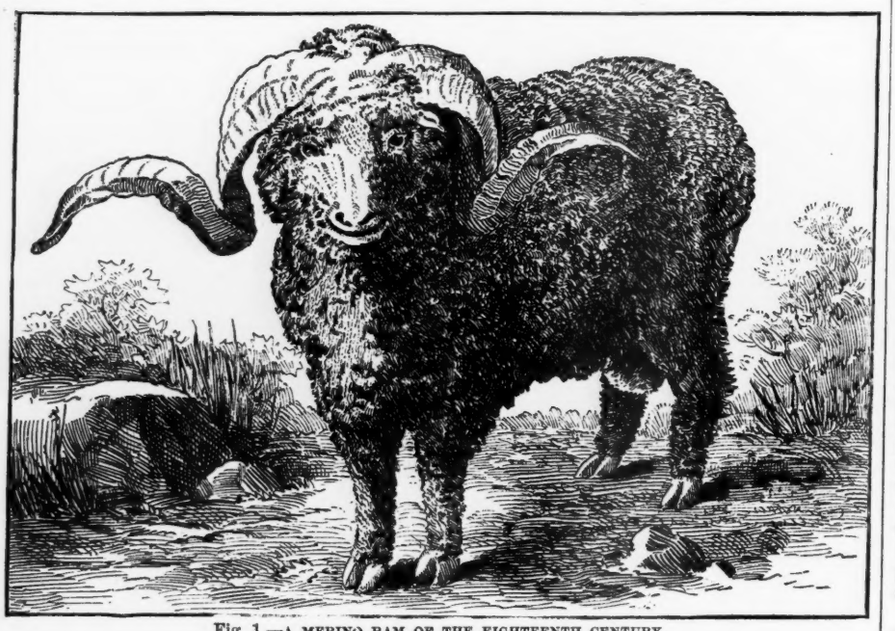


Fig. 1.—A MERINO RAM OF THE EIGHTEENTH CENTURY.

England is supposed to import all the fine wools for her famous cloth and other manufactures; nevertheless the writer visited, a few years ago, a farmer at Grays, in Essex, and was surprised and pleased to find in his possession an excellent flock of pure Merino sheep, closely resembling those of the Atwood's, of Connecticut, and the Vermont flocks, with which he was somewhat familiar. This flock, it seems, came into possession of the proprietor's father directly from George the Fourth, and has since been carefully bred in two or three families without taking any out-cross, and, as was understood, without the introduction of any foreign blood. The flock came originally as a present to the King, when Prince of Wales, and was bred by him, and increased largely in subsequent years. The accompanying engravings show the changes which have taken place in the course of ninety years' breeding. The animals look very unlike. Figure 1 is a portrait by no mean artist of one of King George's rams. The magnificent horns are his chief glory, in the ram's own opinion. He is wrinkled all over, wooled clear to his hoofs, but not much upon the face and poll, as is now the fashion, and his coat is a fleece of fine wool without mistake. The other ram (figure 2) has smaller horns; a deeper carcass, shorter legs, and a straighter back. The Merinos have apparently been greatly modified.

Utilizing Weeds.

Weeds will grow after the standard crops, corn and potatoes, have been cultivated for the last time, and some of them will go to seed and make work for another season, unless they are eradicated. Weeds have their uses, and this may be an additional motive to keep the fields clean in the fall months. The grasses, purslane, and many other weeds have nourishment in them, and make excellent feed for cows, young stock, hens, and pigs that are kept in close pens. Hens will lay much better that have green food daily added to their rations of corn or other food. The fattening pigs will thrive much better with weeds thrown into their pens. Weeds of all sorts make good work for future years. It sometimes pays to plow under the weeds, as the cheapest way of utilizing them. Let no weeds of any sort go to seed.

Take Care of the Home Fertilizers.

If horse dung is thrown into a heap at any time of year, it will hardly get cold at all, for the heat from fermentation will begin before the animal heat is gone. This will soon cause it to "fire fang," greatly deteriorating its manurial value. If it can be trodden down hard, as, near a stable-door where horses and men constantly travel over it, it will remain almost unchanged for a long time. If kept moist and well compacted, it will not be injured; and, if very wet, even though not compact, it will undergo a slow decomposition which, while it improves the texture, causes no loss unless the water flows away. Horse manure may be so treated that, though unmixed with other substances, it will suffer little or no loss, and become fine and well decomposed. It is, however, much more easily brought into condition for use as fine manure, or garden compost, by mixing it with sods, loam, peat, swamp muck, or something of that kind. This should be done daily as the manure is thrown out, and it is by far preferable to have it under cover than exposed to the weather. Whatever material is used, it should not be regarded as a diluent simply, for the action of the fermenting dung is to develop some available plant food out of the soil, or peaty matter used to control the fermentation, while at the same time the strawy or lumpy character of the manure is rapidly lost, and the whole becomes a homogeneous mass.

The fermentation of the manure and the loss of valuable ingredients is not entirely checked by this mixing with soil, but, in a measure, only controlled. If it goes on too far, the mass will become poor in nitrogenous matter: ammonia will be formed, this will be absorbed, but the action will still go on. If the proportion of soil is not very great, after awhile we shall be forced to use something else to arrest and hold this volatile gas, the most valuable and fugitive of all the ingredients of manures. Plaster (ground gypsum) is often used for this purpose, and is efficient. Sulphate of iron (green vitriol) is exceedingly convenient, because it can be procured in small quantities, and will go a great way. It is dissolved in water and sprinkled over the heap every two or three days. The quantity to be used is determined by the amount of earth or peat used in the compost. A pound in a pailful of water ought to be enough for a cart-load of the compost.

The amount of earth used at first should be about half as much as the whole bulk of the manure, and it should be spread evenly over the surface after the manure is laid regularly upon the heap. Cover each time only the last application. It is well to tread the heap down now and then, and after it has stood long enough to begin to heat, say two or three weeks, it must be shovelled over, with the addition of as much more earth. The heap should be placed where liquid manure may be collected and pumped or thrown over it. If this cannot be obtained, and the heap becomes dry, water must be used freely, so as to render the entire mass moist. A convenient way to watch the heating of such a compost is to have one or two pointed hard-wood sticks thrust three feet or so into the heap. When withdrawn, the sticks are more or less warm, according as the heap is heating. After once heating and being worked over with more earth, there is little danger of the compost heating injuriously for several months. It should, however, be carefully watched.

Fig. 2.—A MERINO RAM OF THE PRESENT DAY.

A New Orchard.

There is no more profitable use to which a farmer can devote a share of his land than to orchard planting. If he intends the fruit for his own use only, it will be in the best sense of the word profitable, as it will bring health, comfort, and enjoyment. Many plant trees without properly considering the varieties, and then, grudging the land thus occupied, ask of it, what is required of no other field upon the farm, viz., that it shall annually support two crops, the trees and grass, grain, or something else, which usually has the land all to itself. This treatment is mainly the cause of the "giving out" of fruit, about which we hear in the older States. While we advocate the planting of orchards, we have too much regard for trees to wish them to be submitted to such treatment. Unless one can be content with one crop from his land, and be willing to give it up to the trees, he had better not plant them. Of course, while the trees are young, a wide strip between the rows may be properly occupied by a crop, but when they come into bearing, the trees should have the whole land, and all crops, such as clover,and other pasturage for pigs, should be grown for the benefit of the trees. An orchard, properly treated, may be made profitable if the fruit is sold, dried or "evaporated," or converted into cider and vinegar. There is no better time to prepare an orchard than during this and the next month, whether the planting is to be done this fall or next spring. The most important work of preparation is drainage. Trees are sometimes planted upon soil that is too wet, with the intention of laying the drains afterwards. It is much better to drain before planting, as the convenient time for laying the drains may not occur for years, and the trees, having made their early growth in an unsuitable soil, can never be completely restored. Very poor land may require manuring, but if sufficiently fertile for the ordinary crops of the farm, it is rich enough. Thorough plowing, with a breaking up of the subsoil, is of more importance than manure. Even if the trees are to be planted in spring, much time may be saved by laying out the ground, placing a small stake to indicate the place for each tree.

Wheat.—How Much Seed per Acre?

J. M. STAHL.

It is the common practice in this country to sow from one and one-half to two and one-half bushels of wheat per acre. This is doubtless a relic of the agriculture of the time spoken of in Scripture. For surely a man must be supposed to make some allowance for birds, stony ground, and thistles when he scatters two bushels of wheat on an acre. He must sow on somewhat the same principle that the early Illinois settlers planted corn, who put in a hill: two grains for worms, two for moles, two for squirrels, three for crows and blackbirds, and three to grow. Two bushels of seed wheat was the proper amount when men plowed with a stick and seeded with two sticks. It may not have been too much when, as was the case scarcely more than a half century ago, the ground was poorly plowed with a wooden mold-board plow, pulverized with a straight-toothed wooden harrow, and the seed sown broadcast and covered with a brush. Better implements, better knowledge, better methods, better culture, have made less and less seed requisite. Among the essentials of complete germination may be mentioned fineness and firmness of the seed-bed, and an equable distribution of its moisture and heat. These conditions did not exist in the seed-bed fifty years ago, and are not found in perfection in the seed-bed to-day. The ground is now thoroughly plowed to begin with, and the use of spring-tooth and disc harrows, of drags and iron rollers, makes it very fine and firm. The more homogenous the soil, the more equable will be its moisture and the more uniform its temperature.

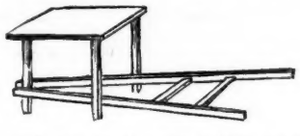
A half century ago, much seed was wasted by the manner of sowing. It was thrown by hand, and not evenly distributed. It was harrowed or brushed in, which covered some seed six inches deep, and left some uncovered. The strong crowded out the weak, and an additional waste resulted. The force-feed drill distributes the grain evenly and covers it to a uniform depth. Hence less seed is required. At that time much more was winter killed. The grain did not make a vigorous growth, because its food was difficult to obtain. The ground, loose and lumpy, rose and fell more by the action of frost than now, when it is fine and firm. There were no ridges to protect the wheat as now, when the drill is used. The use of fertilizers, to insure a vigorous growth in the autumn, was not so common. Then considerable grain did fall where it had not much earth, and some fell among thorns. Farmers are now careful to make more earth by better culture and the use of fertilizers; and each year they wage war against thorns and weeds that might choke out the wheat. There is less seed lost in this way now than formerly.

Wheat is a wonderfully prolific grain when it has a chance. A grain produces but one plant. But wheat "tillers," and many stalks are formed from the one plant. Where wheat is not crowded, is in a fairly rich soil, and the tillering is not impeded, the average number of stems for each plant is sixteen. Each one produces a head or ear, containing on an average, under reasonably favorable conditions, fifty grains. Thus one grain yields eight hundred grains. At this rate, the man who sows two bushels to the acre, would harvest sixteen hundred bushels per acre, or else much of the seed is lost. The average yield of the country, however, is less than fifteen bushels per acre. A bushel of wheat contains, ordinarily, seven hundred and fifty thousand grains; two bushels, one million five hundred thousand grains. An acre of land contains slightly above six million square inches. So that each plant has four square inches from which to derive sustenance. Measure that on the ground, and see how small it is. Can you expect the plant to make a vigorous growth on four square inches? Can you expect it to tiller and produce sixteen stems? Can you expect it to mature sixteen full heads? The result of this crowding is plain. The plants can not gain nutriment when growing so densely. Some must die that the others may live. The strong triumph and the weak succumb. This struggle for life begins as soon as the plants appear above ground. As the plants grow larger, they require more room, and others must give way, and very few, if any, attain a full growth. All are cramped and starved. Tillering is impeded; many plants do not tiller at all, and those that do, tiller imperfectly. The same is true of earing. Full ears can not be expected. An acre of wheat contains about eight hundred thousand heads. It is safe to say that, on account of tillering, these are produced by three hundred thousand plants. Consequently, only one-fifth of the grains sown produce mature plants; these plants produce less than one-fifth of the proper number of stems by tillering, and these produce imperfect heads. This is almost entirely caused by crowding.

Two quarts of seed sown on an acre have produced fifty bushels of wheat. Where all the conditions are favorable, the American farmer should not sow more than half a bushel per acre. But agricultural reforms are never sweeping; therefore let the wheat-grower try one bushel per acre.

A Milking Stool Attachment.

This illustration shows the milking stool used by A. S. H., of Lapeer, Mich. It is a common



three-legged stool, with a pail holder fastened to the legs two inches from the ground. It is made from ¾-inch strips, and there are notches cut in the legs to receive the frame for holding the pail.

Diseases of Quince Trees.

W. W. MEECH.

There are three diseases of quince trees. A blight, closely resembling the well-known pear blight, is readily known by the leaves withering and turning black in the season of most rapid growth. Sometimes it is confined to the tender

Fig. 1.—A QUINCE AND STEM DISEASED.

twigs, in other cases it shows itself in patches along the branches, or the entire bark is discolored and shrivelled. If we cut through the bark, the wood is found to be dead and hard, like wood seasoned a long time. This often envelops the main trunk in whole or in part. If the tree consists of several trunks, as is common with the quince, some die down to the collar, while others appear unaffected. At first I tried cutting out and burning all the affected parts, as soon after the appearance of the blight as possible. But the disease so soon appeared in other parts of the trees, that it kept me very busy, and some trees died in spite of all my care. Afterwards I tried salt, which was sown broadcast as far as the roots of the trees extended. I did this about the time the buds opened, and that year there was very little blight. The next year I salted all my trees, and was happy in not seeing any blight at all. The trees upon which there were patches of blight on the limbs, or the trunks of which were affected, showed a disposition to cover the diseased places with new growth. Several years of this experience have convinced me that this annual salting in the spring is a preventive of the blight. For trees two or three years old, I use about a pint of salt, and increase the quantity as the trees grow larger. A caution is in place here: over-salting is as ruinous as judicious salting is beneficial. I use salt for my pear trees in the same way, and I have not had any blight among them for as many years as they have been salted.

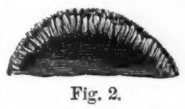


Fig. 2.

Another disease of the quince is a very destructive fungus, known to science as the *Rœstilia aurantiaca*. It affects the leaves with red spots, that multiply and enlarge until the foliage of the tree becomes unsightly, and finally the leaves fall to the ground. It requires a magnifying glass to see the fungus on these spots. Not so with the stems and fruit. On these it shows itself as a reddish powder, easily seen. Wherever these orange-colored spores are wafted by the wind, they carry the disease to both stems and fruit. The period of its destructiveness is confined to the time when the growing fruit and stems are quite tender. If the stem lives and grows in spite of the attack, it will exhibit an enlarged and spongy growth, figure 1. After the fruit grows to about the size of a hen's egg, it seems to be beyond the attacks. The effects of this disease are often seen in the little dried-up quinces that stay on the tips of the dead twigs, and become almost black in winter. A cross section of the diseased part is shown in figure 2. This disease has discouraged quince-growers. Gathering and burning all affected fruits and twigs is an effective remedy. A third form of disease is caused by a fungus, *Marthiera Mespili*, which attacks the leaves,giving them a blotched appearance.

Protection in the Garden.

Plants recently set out may suffer from too much sun in mid-day, or be injured by cooling at night. In either case, a very slight protection may save them. It does not require a frame or even a mat. A sheet of paper will answer just as well as a more bulky covering to keep off too much heat from the sun, and to prevent too great radiation in cool nights. If we use paper, and old newspapers are the most convenient material, we must contrive some means to keep it from contact with the growing plants. Otherwise, the paper, (if used to protect the plants from too much cooling, if not from frost), when it becomes wet from the condensation of dew, will soon get so heavy as to press upon the plants, and thus injure rather than preserve them. Figures 1 and 2 show how such protection may be effectively given. Two twigs of any suitable bush at hand, being placed as in fig. 1, a paper is laid over them, and by means of a little earth or small stones upon its edges, is kept in place. This method will answer for single plants, but where

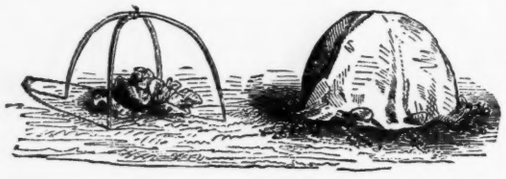


Fig. 1.—THE TWIGS. Fig. 2.—THE PROTECTOR.

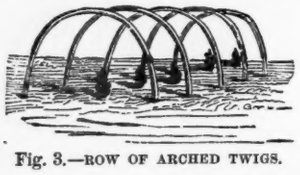


Fig. 3.—ROW OF ARCHED TWIGS.

they are in a row, the arched twigs may be placed as shown in figure 3; these are to be covered with paper, held in place in the manner shown in figure 2.

The Elder as a Weed.

The English works upon agriculture treat upon the propagation and cultivation of the Elder, it being regarded as a useful shrub, while farmers in this country are mainly interested in destroying it. The two, the Elder of Europe (*Sambucus nigra*), and our common Elder (*S. Canadensis*), are so nearly alike, that botanists think ours may be only a form of the other. The various uses made in Europe of the flowers as a perfume and in medicine, of the berries in wine, syrup, etc., and even of the wood of the large stems, are little known in this country. The Elder of England is often a tree twenty feet high, while with us, it makes unsightly clumps, rarely higher than six feet. Aside from its flowers and fruit, the Elder of England is valued for making a sort of hedge or screen, to shelter crops against severe winds, and it is also used as a nurse-tree to shade and protect plantations of young forest trees, uses for which we have much better plants. Our Elder has wide-spread roots, and merely cutting the stems causes the production of numerous shoots, which will increase the size of the clump. One of our writers, early in the present century, claimed that Elders could be killed "if they were mowed five times." He was probably right, if the times were at proper periods. To kill the Elder, or any similar shrub, it should be cut when in flower; at this time its energies have been expended in the production of leaves and flowers, and it has not yet begun to store up a supply of food for future growth. Cutting at this time, greatly checks the plant, and though it will produce shoots from the root, the cutting of these, as often as they appear, will soon exhaust it. This persistent cutting down of the new growth is rarely faithfully done, and it is much better to trust the work to sheep, which, if enclosed upon the field where Elders are to be destroyed, will keep down every green shoot. To those correspondents, who have asked about exterminating Elders, we have replied by mail that they might cut them while in bloom. If it is desirable to exterminate the bushes this month, we should grub out all that could be readily removed in this manner; each clump will leave a number of long roots in the ground, which, if neglected, will only make matters worse. The shoots from these should be frequently cut, or eaten off by sheep, and as these have now gained strength, it may be necessary to continue their suppression next spring. One fact is well established: No plant, continuously deprived of its foliage, can live. Some have a larger underground store from which to form new shoots, than others, but if the cutting is continuous, the plant must eventually succumb. Mr. Tatnall, of Delaware, found that this was true with even the worst of all our weeds, the "Horse Nettle" (*Solanum Carolinense*), if the man was determined to hold out longer than the plant.

Farming that Pays.—An Illustration.

Our readers are invited to come with us and take a look at two fields, side by side; real fields, not imaginary ones, as agricultural editors are sometimes supposed to write about. We will not tell just where they are, as our host begged us not to; and besides, a good many of our readers may think of neighbors who may be the owners of the farms referred to. There are thousands of similar farms all through New England, New York, New Jersey, Pennsylvania, Southern Ohio, the Virginias, North Carolina, Kentucky, and Tennessee, and the practical lesson will apply in other States.

The seven-acre field right before us has a magnificent crop of rye growing. The one right alongside of it is a ten-acre pasture lot. The stones on it remind us of a New Hampshire stage-driver, to whom we said, "That's a terribly stony, jolting road we have just come over; our hat is all smashed in, and our bones as sore as if beaten with a hickory maul."—"Yes," said he, "but if you take them stones out, there won't be any road left." The fields are on a hill-side, not steep enough to "wash" in ordinary rain-storms. They run originally alike in soil, in stones, and rocks, in apparent worthlessness. Here is an outline of our talk with the farmer while looking at that crop of rye, thick, tall, the heads long and well filled:

Editor.—"How many bushels of rye do you expect to thresh out from this field?"

Farmer.—"Somewhat over forty, I reckon."

E.—"Isn't that a pretty high figure?"

F.—"I guess not. I have threshed out forty-six and a half measured bushels an acre on the field, when it didn't look much better'n now."

E.—"How much manure did you apply?"

F.—"Well, I don't know exactly. We kept hauling it out from the cow yards as we had time; about forty two-horse wagon loads, p'rhaps fifty; but call it just about forty-nine, if you want to, or seven loads to an acre."

E.—"Have you manured it much before? What rotation of crops do you practice?"

F.—"We put in about the same amount of manure every three or four years, more or less, as we have it, and time to haul it; an average of two good loads a year, perhaps, the larger part of it when we have corn on. We follow corn with rye, sowing plenty of clover and timothy seed in the spring, and then mow, or pasture two to four years, according as the grass holds out, and then plow again for corn or oats, to be followed with rye."

E.—"Do you often get forty bushels of rye?"

F.—"Not always. A bad spring, one when it thaws and freezes a good many times, partly kills the rye roots, and wheat won't stand the cold, changeable weather we have here."

E.—"How much corn do you get?"

F.—"Corn is uncertain hereabouts; the spring often too cold, and autumn frosts too early. In good years I have had seventy bushels an acre of sound corn, and then again scarcely forty bushels of soft corn and nubbins, on account of cold, wet weather and early frosts. Rye, oats, and grass pay better."

E.—"Do you average thirty bushels of rye?"

F.—"Yes, more'n that. I was talking it over with my sons only last week, and we calculated that that field has averaged about thirty-three bushels. That's been a first-rate field ever since we got the stones off. There's plenty of them left, but, excepting a few rocks, the stones are not larger than your fist, and we think these small stones are good for the land."

E.—"What has rye generally sold for?"

F.—"About one dollar a bushel, one year with another; sometimes more, sometimes less."

E.—"How much does it cost an acre?"

F.—"I can't tell. We do all the work ourselves, and don't pay out anything, unless you reckon the seed, which would bring money, say one dollar and a half to two dollars an acre."

E.—"If you reckoned for the cost of plowing, harrowing, harvesting, etc., one dollar and a half a day each for man and team for work, one dollar per load for manure, also for use of implements, would twelve dollars per acre cover the cost?"

F.—"Yes, and more. The straw usually pays all cost after the seed is in, and it has sometimes sold for the whole cost of the crop."

E.—"Well, then, calling the straw nothing, can you reckon on twenty dollars an acre clear profit?"

F.—"Yes, it seems so, as you figure it out. I never reckoned it before."

E.—"You say that field was once very stony?"

F.—"Yes, I well remember when it was just as bad as that ten-acre field over there. They couldn't raise ten dollars' worth of anything on it. White beans couldn't grow for want of space between the stones. Father and three of us boys, a yoke of oxen and a span of horses, worked five weeks in that field, and had a big job of it, besides paying a man twelve dollars to blast the rocks."

E.—"If you estimate for men and boys one dollar and twenty-five cents a day, three dollars for teams, that would be eight dollars a day for five weeks, or two hundred and forty dollars, or two hundred and fifty-two dollars, including blasting, that is thirty-six dollars an acre?"

F.—"Yes, as you figure, but it wasn't half that. Two of us boys couldn't have hired out at more than fifty cents a day, and most of it was done when we hadn't much else on hand."

E.—"No matter; take figures two hundred and fifty-two dollars, or thirty-six dollars per acre. You allowed that the rye gave twenty dollars per acre over expenses, and the oats, clover, etc., paid almost as well, which I can believe, on such a field, after thirty-six dollars an acre was spent in fixing it. But cut down the rye profit twenty-five per cent, and reckon it only fifteen dollars, calling your work one dollar and fifty cents a day now, and allowing for other expenses. Let the straw go to the cow yard and stables for bedding and manure. We hear that the farms around here, with fair buildings, are worth about one hundred dollars an acre, or the land alone two-thirds as much. But call that field one hundred dollars an acre, and it returns you a good fifteen per cent?"

F.—"I can't dispute your figures, but I never reckoned it up that way. Besides, this is a good field. That ten-acre lot alongside of it don't pay anything, or not over three or four dollars an acre for pasturage, and so we have to 'average it up.'"

E.—"Yes, we see; but I heard from one of your neighbors that you had over five hundred dollars in the savings bank from the sale of butter and cheese, and that you only get four per cent interest, and also hold a five hundred dollar mortgage, bringing in six per cent. You said a little while ago that this splendid rye field was once just like the ten-acre pasture lot, which does not return over three dollars to four dollars per acre a year, and that two hundred and fifty-two dollars, or thirty-six dollars an acre (or only half that, as you estimate it), made all the difference. Suppose you draw out of the bank three hundred and sixty dollars, and expend it on the stone-covered pas-

ture lot, putting it in as good condition as the rye field. Would you not then get three or four times as much for the money every year you live, and your sons after you? Would it not pay to borrow the money, if we are misinformed about the savings bank and the mortgage? Would it not PAY to sell off ten acres of some other poor part of the farm, even at thirty-five dollars or forty dollars an acre, and expend the proceeds in the pasture lot? Suppose you should sell off half of your whole farm, and with the money put all the other half into as good condition or better than the rye field, and then, with half the work and care, get more crops and far better paying ones, and more real profit?"

F.—"Well, that's bringing farmers down to the book or to arithmetic. I guess there's more in 'book farming' than I had thought of....Here, boys, the Editor says he's going to print this talk in the *American Agriculturist*. Let's go right into that pasture lot before it gets into print. But see here, Mr. Editor, don't you say anything about that savings bank or mortgage, or I shall never hear the last of it. Don't say you have been within a thousand miles of this farm, or print my name, or they'll twit me about the rye and pasture field and the savings bank all the rest of my life, and make me pay more taxes, too. I'll go right at that field, and two other fields you haven't seen, just as soon as I can get the mortgage money."

Diseased Gooseberries.

Mr. Wm. H. Livingston, Fulton Co., N. Y., sends us specimens of gooseberries, which are covered with a peculiar brown coat of felt. Under the compound microscope, this covering is found to consist entirely of minute fibres or threads, that are so interwoven as to make a thick mass. The cause of this trouble is a fungus, known to science as *Sphærotheca pannosa*. This parasitic plant attacks the leaves, young stems, and berries of the gooseberry, and in the worst cases, the affected parts are completely covered with the superficial felt-like growth, above mentioned. The growth develops from spores, which probably are carried by the wind, and find lodgment on the leaves, etc., and there germinate, producing the "disease." As far as can be observed, the threads do not run deeply into the substance of the gooseberry, but small projections from the filaments penetrate the surface cells of the part infested, and through these the parasite extracts the juice necessary for its growth. These minute projections are sometimes called "suckers," and resemble the small roots that grow from the clinging stems of the English Ivy, or the dreaded Poison Ivy.

The fungus, when it first appears, is light-colored, and to the naked eye an affected leaf seems covered with a coat of dust. As the season advances, the filaments grow darker, and scattered among them appear small spherical bodies. These, at first colorless, become dark-brown, and when fully developed, contain the winter spores, as they are termed. Multitudes of summer spores are formed on the tips of the filaments through the early part of the season, and serve to spread the trouble from leaf to leaf and bush to bush. These form in a day, or less time, while the winter spores are of slow growth, and not ready to germinate until the following spring.

We have not heard of any remedy being applied for this disease; but as it is quite superficial, and may be observed in its first stages, it is probable that flowers of sulphur, dusted on, would be effective. This has proved of great value upon grape vines infested with the mildew, and we hope it may be a successful remedy for the gooseberry mould. All the leaves, stems, etc., that are covered with the brown felt should be removed and burned, as they bear the maturing winter spores upon their surface. If these are destroyed, the means of preserving the mould through the winter are cut off. In early summer, dust on sulphur with bellows or otherwise, and later in the season burn all infested portions that have escaped. We ask those who try these means of destroying the gooseberry mould, to report to us their results at the end of the season.

Wooden Water Pipes.

For conveying water short distances (less than fifteen rods), and where the amount desired is greater than can be supplied by a half-inch pipe, wooden tubing will be found cheaper than iron, lead, or other metallic pipes. Wooden tubing, of from one and a quarter to two-inch bore, may be obtained of all hardware dealers. In purchasing, observe that the ends are iron-banded, to prevent splitting when placed together, and to prevent the tubes bursting when under a heavy head of water. Before the pipe is laid, it is best to give it one or two coats of oil; even crude petroleum will do; this adds greatly to the durability. In pipes through which there is a constant flow of water, there is but little danger of decay; in fact, we have known of old-fashioned pump logs being removed after nearly fifty years of constant use, and found sound upon the inside. Wooden, as well as other pipes for conveying water, should be laid below the frost line. If the water be intended for drinking purposes, place the pipe at least three feet under ground, and if in sandy, porous soils, to a still greater depth. After the pipe is in position, and before the water is admitted, pour hot coal-tar over it, especially at each joint, which is readily done by using a watering-pot or an old tea or coffee-pot. Always test wooden and other pipes after they are laid, by admitting water before covering them with soil, in order that a leak, if found, may be easily stopped.

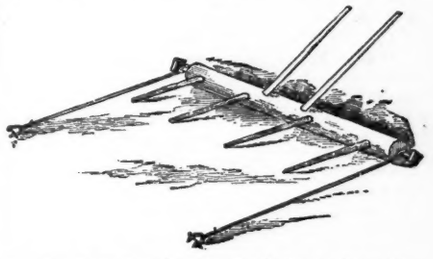
The Abundant Peach Crop.

Notwithstanding winter killing, the destructive frosts at blossoming time, and that remarkable bug or worm that the papers report, the peach crop is likely to be very large this season. Old peach-growers need no advice, but there are many orchards in various parts of the country which will this season yield their first crop, and these are owned by persons new to the business. To those who find themselves, for the first time, with a crop of peaches on their hands, the most important question is—how to dispose of it? If a commission dealer in a city market has not been selected, this should be attended to at once. It is not difficult to ascertain the reputation of such men, and having selected one, stick to him. All sorts of shysters will come along, as the fruit is near ripening, offering better terms than any one else; usually these have no regular place of business, but sell on the dock, or at the depot, if they get a consignment. In many localities drying or evaporating, and canning factories, have been established; it will be well to ascertain if the fruit may not be contracted for at these on favorable terms, and thus avoid much of the labor and uncertainty of marketing. If the crop is to be marketed, of course the kind of packages has been decided upon and procured. If these are to be returned when emptied, see that they are properly marked. The novice in peach growing has much trouble with his pickers. He can not afford to pick himself, but must watch the others. The great trouble is from over-ripe fruit. A single soft peach will spoil a crate or basket, should it become "leaky." Where experienced pickers are to be had, they assort as they pick, but even in the large orchards it is now becoming the custom to assort afterwards. All the fruit properly ripe is picked, and then taken to the "sorters," or "cullers," who make three or four qualities, as may be decided upon. This work is done in a shed for the purpose, or temporary tables of boards upon horses, upon which to spread the fruits, are placed in the orchard. The very finest peaches go as "extra," and the packages of these are "twigged," i. e., a small branch of peach leaves is placed at the top. A second and a third quality are made by some, while others send but two. All the over-ripe, badly-shaped, specked, or otherwise faulty peaches, are placed in a third or fourth basket, as may be, to be used at home, or fed to the pigs. Whether two or three grades are sent to the market, let them be distinctly marked. Let the quality be the same all through the package, if the grower wishes to have his brand acquire a good reputation. It is allowable to place the top layer with their colored sides uppermost, but not to "deacon" or "top off" with large peaches, while all below are inferior. Retailers, who buy the most of the peaches sent to market, soon learn which brands turn out the best, and select accordingly in purchasing.

Improved Brush Rake.

One of the most disagreeable tasks connected with a hedge fence is gathering and burning the annual or semi-annual trimmings. It is generally done with pitchforks, and often causes pain. To have a long shoot, covered with thorns an inch long, spring out from a roll of brush and hit one square across the countenance, is exasperating in the extreme. To avoid this danger, many expedients are resorted to. Among the best of these is a long, strong rail, with a horse hitched to each end by means of ropes or chains eight or ten feet long. A boy is placed on each horse, and two men, with heavy sticks eight or ten feet long, follow. The horses walk on each side of the row of brush, and the men place one end of their sticks just in front of the rail, and hold them at an angle of about forty-five degrees, to prevent the brush from sliding over it. When a load is gathered, the horses are turned about, and the rail withdrawn.

The device shown in the engraving is an improvement on this method. A good, heavy pole, eight to twelve feet long, has four or five two-inch hard-wood teeth set in it, as seen in the cut. These teeth may be twelve to twenty inches long, and slide on the ground in front of the pole similar to those of a revolving hay rake. The handles are six to eight feet long, of ash or other tough



wood, and fit loosely into the holes in the pole. Two horses are employed, one at each end of the rake. One man holds the handles, and raises or lowers the teeth as necessary. When a load is gathered, the handles are withdrawn, the ends of the teeth strike the ground, throw the pole up, and it passes over the heap. After a little practice, a man can handle this rake so as to gather up either large or small brush perfectly clean, and do it rapidly.

Rod Traces for Lead Horses.

An experienced horseman has invented and used a rod-trace, made of three-quarter inch rod-iron, which is much better than the common leather trace for leaders in a four-horse team. With this trace the lead horses are not annoyed by the whiffletree rattling around their heels when the horses are held up on a down grade, thus avoiding a frequent cause of kicking. If a horse should get down in a bad road, he could not be injured by these rods, as they would be clear above his back, if other parts of the harness were properly attached. A good, sound piece of leather tug from an old harness, will answer for the piece to which the rod is riveted, and which is buckled to the "hames-tug." Any blacksmith can make one at a small cost. These rods cannot be used for single teams on the pole. W. D. B.

Incubators.—A correspondent, who forgets to sign his name, asks where an incubator can be bought, and the price. Several makers of incubators have, for many months, conspicuously offered their wares in our advertising columns.

Toads and Frogs.—Alice E., Brooklyn, Iowa. Both the "nasty toad" and the frog are, in their young state, "pollywogs." There are—to answer your letter—different kinds of pollywogs. Some become frogs, and others develop as toads, according to their parentage.

Great Fecundity of an Ewe.—A black-faced ewe in New Galloway dropped six lambs on the 28th of May. Four of these were alive, but one died shortly after birth. The other three were still alive when last heard from. The same ewe gave birth to five lambs last year. We should not care, however, to own such stock, a single lamb to the ewe being better, though twins are passable from extra strong, hardy ewes.

Plastered Walls in Hen Houses.—"Will the hens pick the plaster?" Yes, if the plaster is poor, and the hens are not supplied with ground oyster-shells, or other form of lime, and gravel. No, if the wall is laid up of good cement concrete, or is firm, solid, and smooth, even though no cement be used. It is best to use some cement in any case, to keep the walls well whitewashed, and to keep plenty of ground oyster-shells always accessible to the fowls.

Wolf in the Tail.—W. A. Clark, of Texas, is in doubt, because we advised "R. S.," in the July number, not to cut off his cow's tail. You had better give your cow a good dose of salts, say a pound of Epsom or Glauber Salts, with one ounce of powdered ginger, and then, when the salts operate, feed generously to bring her up. Give, for instance, bran, ground oats and ground corn mixed, in equal quantities, a little at first, and increasing. Her tail will get well.

"By Return Mail."—We every now and then receive a postal card asking us to reply "by return mail" to this or that inquiry. In old times, when mails left at rare intervals, "by return mail" may have had a meaning. But at the present time, to ask one in New York City to reply "by return mail" is asking an impossibility. In the present rapid exchange of mails, there is no such thing as a "return mail." We observe that the more trivial the question, the more general is the request for a reply by "return mail."

A Great Sheep Market.—The largest sheep sale was held at Ilsley, Berkshire, England, in June. It is said that eighteen thousand to twenty thousand full grown sheep and lambs were then penned there for sale, all of which were sold off rapidly. What would our flock-masters say to such a gathering, and especially when these were bred and sold for mutton, and not for the production of fine wool like the Merino? All probably were the surplus of some four or five of the southern counties of England, which, on the high-rolling Downs, are bred there by the thousands. It is undoubtedly one of the finest sheep-breeding regions in the whole world.

Save the Bones.—Thomas D. Rand, Greenville, Ky., writes us: Bones reduced to a powder are an excellent fertilizer, and can be easily and cheaply obtained. Save all the bones of beeves, hogs, and those from the table, and store them in barrels. In the winter, place a layer of hard-wood ashes on the bottom of the barrel, or any convenient vessel; then a layer of bones on the ashes, and add another layer of ashes, filling the space between the bones with ashes, and so on, until the vessel is full, finishing off with a thick layer of ashes. This mixture must be kept moist, if done with chamber lye and soapsuds all the better. The bones will heat and soften, so that they can be crumbled with a stroke of the spade.

Devon Cattle on Western Ranches.—We had supposed the Devon cattle were too small to suit ranchmen, but the contrary seems to be the case, in some instances, at least. We often notice accounts of their being sent on to the Great Plains for the purpose of improving the native stock there. A short time since, fifty-one head of Devon cattle were purchased in Connecticut and Massachusetts, and sent West. The Devons are admirably suited for the hill pastures and lower grassy spurs of the Rocky Mountains, being quick and active in their movements, hardy and thrifty even on the shortest pastures. The Devons will do well on grass where the Shorthorn, Hereford, and other large cattle would nearly starve.

Horseradish and Willows.—J. P. Peck, Hampton, Iowa, asks us "what will kill Horseradish and Creek-Willows." If the patch of Horseradish is not too large, spade the ground thoroughly and deeply, picking out all the roots that are found. The small fibres that escape will throw up leaves, but if some crop is put upon the land that admits of frequent hoeing, and the Horseradish shoots are cut as often as they appear, they will give up after a while. By "Creek-Willow" Mr. Peck probably means any willow that grows along streams. The treatment of these must be essentially the same as described in an item on destroying Elders, but modified as occasion requires.

Grass for a Name.—W. P. Smith, Mobile Co., Ala., sends a specimen of Italian Ray-grass (or Rye-grass), and wishes to know about it. Though called *Lolium Italicum*, it is a variety of perennial Ray-grass (*L. perenne*), which has become annual, or at most biennial, in cultivation. It is regarded as a valuable grass wherever it has had proper cultivation. In some parts of Georgia it has been grown with success, and it may be inferred that it would be equally valuable in Alabama. Sown in August or September, at the rate of ten pounds of seed to the acre, it will afford abundant grazing in February, or it may be allowed to grow for hay. If it is desired to make a continuous pasture, a sowing must be made every second year, first scratching the soil with a harrow, and rolling after sowing.

Gas Lime in the Garden.—H. H. Allen, of Mo., writes that an application of gas-house lime upon cabbage plants, tomatoes, sweet potatoes, etc., killed them. Of course it did. It is very poisonous to plants, and even fatal to them in small quantities. It contains valuable manurial substances, notably ammonia, in combination with sulphur or some acid of sulphur, and sulphate of lime, besides more or less slaked lime. The sulphur compounds, except sulphuric acid (which is innocent, nay, valuable, when combined with the lime), are all poisonous to plants, but exposure to the air causes them all to become harmless. It is best to apply gas lime upon the surface of the ground in winter, and thus give it thorough exposure to the weather for several months. There will not be much ammonia left in it, but the lime and the sulphate of lime, equivalent to land plaster, will be of value, especially on clayey or loamy soils rich in vegetable matter.

About Feldspar.—James Rideout, Macon Co., N. C., asks us if Feldspar is used as a fertilizer. Feldspar, in a state of decomposition, occurs in his locality, and he has observed that where the blocks have been thrown out, the vegetation around them is very rank. His soil needs a fertilizer; it costs too much to bring lime, and, though he does not say so, he evidently intended to ask if he could use Feldspar instead. There are several kinds of Feldspar, differing greatly in composition. The most common Feldspar is a silicate of potash and alumina; another has soda in place of potash, and others still have lime in combination with soda. It will be seen from this that Feldspar is a term for a very variable mineral. Some of its forms readily decompose and make a very fertile soil. Our correspondent must be governed by local conditions. If he has decomposing feldspathic rock at hand, and it can be distributed upon his soil at a small outlay, it may pay him to use it as a fertilizer. It is doubtful if any form of Feldspar can be available commercially, as the same elements may be had in a much, cheaper form.

The Mange in Swine.—T. Tuttle, American Fork, Utah, finds his pigs troubled with a disease of the skin, which, from his description, we take to be mange, also called itch and scab. Like several other skin diseases in animals, it is due to a minute insect, which burrows under the skin and breeds there. It is contagious, as the insect may be readily conveyed from one animal to another. If any of the pigs are still free from the disease, separate them from the rest. If the crusts upon the skin are hard and dry, rub the parts with soft soap, and after a while wash it off. After this, apply an ointment made by stirring half a pound of flowers of sulphur into a pound of lard, partially melted, or made very soft by heat, and adding half a pint of crude petroleum, or if that can not be obtained, half as much kerosene. Two days after the application, wash the animal thoroughly with soft soap and water. Give the diseased pigs a plenty of sulphur in their food for several days. All pens which the affected pigs have tenanted should be thoroughly cleansed, and these, as well as posts and other places against which they have rubbed themselves, should be washed with chloride of lime, made thin enough with water to apply with a brush.

Money Sent Cheaply and Safely by Mail.—The new postal regulations make it very convenient to remit, safely and cheaply, anywhere within the United States, even to or from the most distant territories, any sum of money, from a single dime up to three hundred dollars. Three postal orders of one hundred dollars each can be purchased on the same day by any one person. The charges are:

Orders from any sum up to	$10. ..... 8 cents.
Over $10, and not exceeding	$15.....10 cents.
Over $15, and not exceeding	$30.....15 cents.
Over $30, and not exceeding	$40.....20 cents.
Over $40, and not exceeding	$50.....25 cents.
Over $50, and not exceeding	$60.....30 cents.
Over $60, and not exceeding	$70.....35 cents.
Over $70, and not exceeding	$80... .. 40 cents.
Over $80, and not exceeding	$100.....45 cents.

This covers cost of order and return of receipt for the money. These orders are payable only to the order of the person to whom they are sent. Small sums, as for newspaper subscriptions, seeds, and for any other purpose, are thus sent for from less than half a cent on the dollar to four-fifths of a cent for ten dollars and under.

Your Signature.—Frequently we receive a letter in which every word is plain, each letter in it being well formed and distinct. When we come to the signature, there are several scratches and a flourish, which it is impossible to decipher. It would appear as if the writer, fatigued by careful writing, had found relief in making the signature as carelessly as possible. We have several letters, the writers of which ask for information by mail, but the signatures may be Jones, Smith, or Robinson, or neither. Often important letters, relating to business, are so blindly signed, that they are passed from one to another in the office, in the hope that some one may be able to guess at the name. If all fail to make it out, there is nothing to be done but to place the letter with others of its kind, and wait. Usually there comes a letter of complaint, or one asking if the former letter was received, and this usually helps to make out the name. With an immense correspondence like ours, the time expended in the endeavor to decipher blind signatures is no small item. The signature is the most important part of a letter, and there is no reason why it should be the least legible. Every child should be taught to write its name plainly, and be impressed with its importance. Many signatures remind us of the description some one gave of Rufus Choate's, "a small gridiron, struck by lightning."

Save your Melon Seeds.—When one meets with an especially fine melon upon the table, he is desirous of securing the seeds. Indeed, the only way in which a strain of melon can be kept up to its standard or improved, is to select seeds from the best specimens. In raising melon seed for the market, the growers allow the fruit to get much riper than is desirable for eating; this gives a greater yield of plump seeds, which are more perfect than if the fruit were taken in its best condition for eating. In the operations of the kitchen, the contents of the melons are sure to be thrown away, and whoever would save seeds from them, must attend to the opening of the fruit himself. Place the contents of the best melons in a bowl or other convenient vessel, cover them with water, and allow them to stand for a few days to ferment. They should be looked to and stirred every day, and when it is found that the seeds fall from their attachments to the bottom of the vessel, the refuse is to be removed, the seeds washed, and spread out to dry upon boards or a cloth. The seeds of watermelons are much less likely than those of melons to be perfect at the time the fruit is in eating condition; hence seed-growers allow watermelons to get dead-ripe, or rotten-ripe, before they separate the seeds. Of the seeds separated when the fruit is eaten, a share will grow. Such seeds should be collected, washed, and dried. In sowing watermelon seeds of any kind, it is well to recollect that a large majority are worthless, and to be liberal accordingly. With cucumbers, allow a few of the earliest and best shaped to ripen on the vines for seed. All others, if not wanted for use, should be removed, and not allowed to exhaust the vines uselessly. When thoroughly ripe, gather the cucumbers and cut them lengthwise, scrape out the contents into a vessel, and allow them to ferment until the seeds are freed from mucilage which surrounds them, and can be washed and dried.

The Preponderance of Pines.—The fact that a new growth of trees, where oaks and others have been cut off, is largely of pines, has been ascribed to the condition of the soil, which, being exhausted for the sustenance of oaks and other deciduous trees, is favorable for the pines. J. A. Goree, Tuscaloosa, Ala., writes that his observations show that the preponderance of pine trees is mainly due to the fact that they escape the browsing by cows and other animals, which pass by the pines and feed upon the deciduous trees.

Pine Trees and Lightning.—Every now and then it is asserted that some particular tree is never struck by lightning. Not long ago it was the Beech; of late some papers have claimed that the Pine is exempt from injury by lightning. We have most direct evidence that at least one White Pine has not only been struck, but killed. Our correspondent at "The Pines" wrote us, some twelve years ago, that the largest of a group of venerable pine trees was struck, the course of the charge being plainly seen by the rupture of the bark. Its large stump still remains in evidence of the fact that the Pine is not lightning-proof.

Brett's Auckland Almanac.—Nothing shows the wonderful progress made by New Zealand and Australia, more strikingly than the publications we frequently receive from them, unless it be the large circulation of the *American Agriculturist* in both countries. The volume contains one hundred and seventy-six pages of reading and reference matter, and nearly as many of advertisements. Besides the almanac proper, there is a monthly calendar for the farm and garden. It gives a very full statistical account of the island, its laws, and a vast amount of other information, the whole forming a volume of interest and value that would be creditable to a much older country.

Thornless Blackberries.—Wallace Overton, Bayport, N.Y., inquires about "The Thornless Blackberry." We have not known of a variety so called, though there are several claimed to be without thorns, such as the "Wachusett Thornless," "Newman's Thornless," and some half-dozen others. So far as we are aware, none of these have been found worth cultivating. None of these varieties are entirely thornless, but the usually robust thorns are reduced to a few small, weak prickles. It would seem as if the absence of thorns indicated a weakness in the plant, which is also shown by few berries as well as few thorns. We should be glad to welcome a really valuable thornless variety, but it has not yet appeared.

How Long will the Coal Last?—Not long ago, English coal consumers were anxious because some geologist had calculated that the coal supply of the island would, at the present rate, be exhausted in some thousands of years, more or less. The Pennsylvanians have a much shorter supply. Some one has shown that the anthracite, at least, will last but a little over three hundred years. When coal first came into general use, a wealthy old gentleman in a New England town, who was a noted grumbler, refused to alter his fireplaces to admit grates and coal stoves. He regarded it as a needless expense, as in a few years the supply of coal would be exhausted. "Why, Mr. D.," said a neighbor, "geologists calculate that there is coal enough to last the country a million years."—"Yes," was the reply, "but what are we a-goin' to do then?"

California Fruits.—California fruits now appear in the fruit stores and upon fruit stands in considerable profusion. Apricots, plums, and pears, mainly the Bartlett, were in abundant supply in early July, and these were soon followed by fine exotic grapes. The improvement noticeable, within a few years, in the condition in which California fruit is received, shows that the shippers have learned much, both as to packing and the proper condition in which to pick the fruit. Severe "northers" and unusual frosts have, in some localities, greatly injured the fruit crops; yet the abundance in other places, with the greatly enlarged area devoted to orchards and vineyards, bring up the average, and we are informed that the shipments to the East will be at least as large as last year.

White and Yellow Corn.—A. Kingsbury, Coventry, Conn., asks as to the difference in value between yellow corn-meal and white. According to the latest authorities, analysis does not show any essential difference between the two. But "A. K." says that the white meal that he buys is said to be the siftings from hominy. In that case, there may be an undue proportion of bran, which will greatly diminish its value; indeed it is probably not a true meal, i. e., does not represent the entire grain. For table use, the difference between white and yellow meal is very great; the individual preference for the one or the other appears to depend upon early education. Those who, in their youth, have been accustomed to white meal, can not tolerate the yellow, and *vice versa*.

Apple Seeds for Stocks.—R. S. Lybarger, Kingston, Kans. Our nurserymen sometimes sow the pomace, containing the seeds, breaking it up as fine as possible, and sowing in the fall. The more common way is, to separate the seeds by washing, and spreading them thinly to dry, keep them until next spring. These are usually sown very early, without any preparation. Imported seeds, and those which it is feared may have become too dry, may be mixed with sand. Sand, with the natural amount of moisture, just as it comes from the bank, may be mixed in about equal bulk with the seeds, for a week or two before planting. The sand will slowly impart moisture to the seeds, causing them to swell and even to germinate. They should be sown before the sprouts get large enough to be broken.

Come Along, Dr. Brehm.—Brehm's manager, one Hermann, sends us a very handsome lithographed letter, in which he says: "I take the liberty of informing you that the Hon. Dr. Brehm intends to visit the U. S. on or about January 1st, 1884, and to lecture there in the principal cities." Well, let him come. The letter informs us that Dr. Brehm, or Briehm, as the name is spelled both ways, "has been decorated for his merits by most of the crowned heads in Europe." Never mind that; if Brehm or Briehm is a good fellow, we "won't lay it up agin him," no matter how much he has been "decorated." But we are told that through his "beautifull" works, his name is known "through every house and family," which is fortunate for Briehm or Brehm. We are told that Dr. B. "is considered the greatest popular writer and lecturer in existence," and that as "an investigator and discoverer," he ranks "foremost among the leading men of the century." We believe that Dr. Brehm is a respectable naturalist, and that he has been unfortunate in falling into the hands of such a chap as Hermann. If Dr. B. comes to this country, he will be received for exactly what he is worth. Such puffing as Hermann seeks to procure will only injure him. We use our "large influence" to say that it is very unfortunate that Dr. Brehm should be introduced as if he were a quack cancer doctor or any such humbug. Hermann is altogether too superfluous.

About the Currants of the Shops.—It is a common belief that the dried fruit sold as "Currants," or "Zante Currants," is really a currant, and we are every now and then asked how currants can be preserved, so as to be like those sold in the shops. It is not possible to prepare the currants of our gardens in this manner, for the reason that the imported fruit sold under that name is not a currant, but a very small grape without seeds. The dried fruit was originally brought to England, from Corinth, and called "Corinths," a name which was readily changed to currants. This minute grape is very sweet, and has no other preparation than spreading the clusters upon the ground and allowing them to dry; they are afterwards removed from their stems and trodden down in large casks for export. They are mainly produced in the islands belonging to Greece, where they form the principal crop. The annual importation into England is over twenty thousand tons, and a large quantity is brought to this country. Currants are to some extent used in domestic cookery, but the chief consumption is by bakers. Being dried upon the ground, currants require careful washing to fit them for use. House-keepers, who are obliged to buy a considerable quantity at a time, wash them until quite free from sand and other foreign matters, dry them in the sun, and pack them in stone jars, pounding them down to make a compact mass.

Saving a Pear Tree.—Jos. Clarke, Mount Nebo, Lancaster Co., Pa., writes that his little boy, too young to know the mischief he was doing, shaved off the bark, for the space of about a foot, from a young pear tree, some three inches in diameter. As an experiment, he applied melted tallow to the wounded part, and also spread the tallow on a cloth, which was wrapped around the injured portion, and extended some distance above and below it. The tree formed new bark over the wounded portion that season, and has perfectly recovered. This affords a hint to many persons who, next spring, will find their young fruit trees injured by rabbits and mice. Unless the inner bark and the new or "sap-wood" are completely removed, the trees may usually be saved. So long as there is a layer of inner bark, even if imperfect, connecting the two parts, below and above the wound, the tree, with proper care, will recover. In Mr. Clarke's case, the tallowed cloth excluded the air and prevented drying until the wound could heal over. The usual treatment is to mix cow-dung with clay, or loamy soil, and apply a thick plaster, binding it on with coarse cloths. There is no special virtue in this application, except that it retains moisture for a long time, and prevents the parts from drying. Probably cloth soaked in melted grafting wax, as used in grafting, would be a useful application to such wounds.

The "White Russian" Wheat in British Columbia.

While the farmer should always be on the lookout for improved varieties of grain and other products, he should not hastily give up an old and tried sort for a new and untested one. In wheat, for example, productiveness, while an important quality, is not the only one to be considered. The ability of the plant to resist the attacks of insects, and its freedom from those attacks of minute parasites which cause rust, smut, etc., are of great importance. After the crop is made, and the yield is satisfactory in bushels, its price is yet to be fixed at the mills, and this will depend upon the flouring quality of the grain. There have been great improvements made within a few years in milling operations, but even these can not make good flour out of poor wheat. Millers have learned that a handsome starchy grain will not make the best flour, while a very unpromising looking "berry" turns out the best bread. New varieties of wheat are offered almost yearly, with the claim of remarkable productiveness, as if this were the only desirable quality in a grain. The "White Russian" is a recent variety, concerning which, a correspondent in British Columbia, writes, that while he finds it yields well, the millers in his locality complain that they "can not make a good merchantable flour from it." He says that there is a large quantity of this wheat on hand, and that on account of its productiveness, a large area has been sown this year. Having heard that this variety has a good reputation at the East, our correspondent wishes to know if it requires any different process in milling from other wheat. He sent a liberal sample, and asked us to ascertain the experience of Eastern millers with this variety. Knowing that Mr. Joseph Harris, Moreton Farm, Monroe Co., N. Y., made a specialty of growing seed wheat, we referred the matter to him. Mr. H. wrote that he had not grown the "White Russian," and suggested that we send the sample to an experienced miller in his county. This was done, and Mr. Harris gives the result as follows:

"The sample resembles a variety of wheat extensively grown in Western New York a few years ago, and known to millers as 'Amber Wheat.' Since the introduction of the 'Clawson,' the 'Amber' is grown only to a moderate extent. This 'Amber' wheat was formerly not much of a favorite with the millers, but since the introduction of the 'Clawson,' the millers talk more favorably of the 'Amber.' Our wheat-growers think the millers are hard to please, and it would seem to be a fact that the wheat which farmers have the most of, is the very wheat that the millers find the greatest difficulty in making into 'merchantable flour.' Our wheat-growers have given up all hopes of pleasing the millers. They have concluded to raise the variety which best suits their soil and climate. The millers utterly condemned the 'Clawson,' but the farmers found it a profitable variety, and the millers have found out how to make 'good merchantable flour' from it. It will be so with the 'White Russian' wheat in British Columbia. One of our most experienced millers says the 'White Russian' wheat would make better flour if ground in roller mills. It needs to be 'ground high,' the middlings to be well purified and bolted through very sharp cloths. It will make, he says, good pastry flour, but it does not contain gluten enough for a good bread flour. For the latter purpose, it should be mixed with hard spring wheat or some long-berried winter wheat, that contains considerable gluten. The same is equally true of the 'Clawson,' 'Fultz,' and other popular and productive varieties of winter wheat. A certain proportion of hard, small-berried spring wheat is generally ground with these large-berried, starchy varieties, to give the flour the desired 'strength.' Spring wheat from the North-west, that brings the highest price in market, is so small and so inferior looking, that one of our large wheat-growers in Western New York, when he first saw it, said it was 'hardly good enough to feed chickens.' It is, however, just what our millers need to mix with the 'Clawson,' 'Fultz,' and 'Amber' wheats. And the millers in British Columbia will doubtless find some hard, small-berried variety that will enable them, when this is mixed with the 'White Russian,' to make a 'good merchantable flour' out of it."

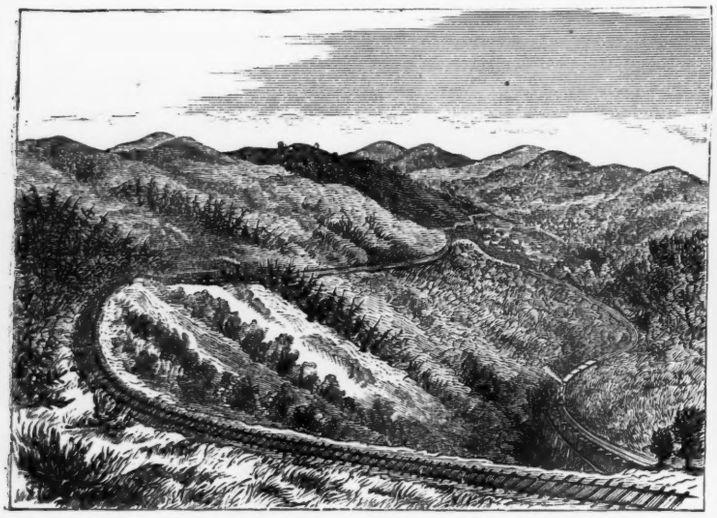
Editorial Notes.

Beyond the Missouri.

How to Travel Comfortably.—Do not stint yourself travelling. It is better to economize at home a little more, and give yourself plenty to eat and commodious care while you are on the road. The difference between making travel a comfort and a discomfort, is the difference between pinching yourself and giving yourself good care, and plenty to eat and drink.

Beware of Travelling Doctors.—Travelling doctors circulate to a considerable extent through the towns and villages of the Far West. One of these lately appeared in Madison, Nebraska, who took in several hundred dollars. After his departure, the people were anxious to get hold of him, in order to apply a coat of tar and feathers. Answer no medical advertisements, and employ no travelling doctors.

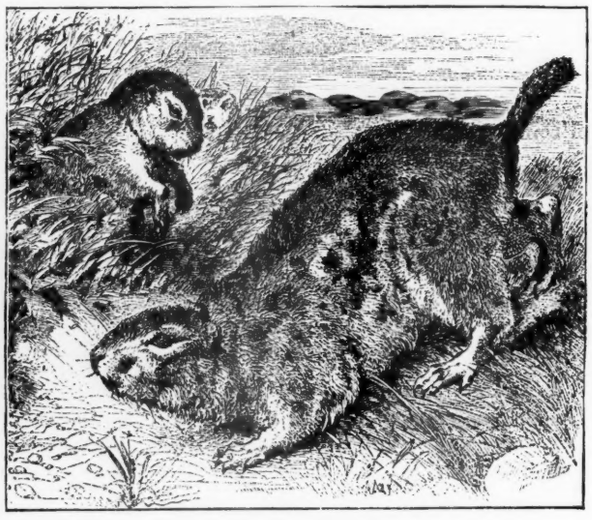
Scenes on the Platte.—While the Platte River is, as a general thing, a turbid, uninteresting stream, it presents very many picturesque views for miles before emptying into the Missouri. Luxuriant foliage lines both banks of the river, and the miniature islands scattered here and there, altogether present a scene of surpassing loveliness and beauty. From the Missouri River to Lincoln, Nebraska, the views from the railroad train in every direction are most varied and attractive.



Railroad Curves Extraordinary.—They tell the story that some of the railroads, which secured land grants from the General Government, made as many miles as possible, by making as many curves as possible—their grants calling for so many acres per mile built. However this may have been, the curves made by some of the railroads west of the Missouri are nothing, if not remarkable. There is one place in Wyoming, where the engineer on a long train can almost hold conversation with the brakeman on the last car. The engraving shows a remarkable curve near Black Hawk, Colorado, a curve rendered necessary by the configuration of the land.

Prairie Dogs.—While the Far West has been and is being "rapidly settled" up, the new comers cherish the ancestral rights of the prairie dogs with almost as much observance as is felt in Southern cities for the buzzards and other birds, which feed upon and carry off carrion. A little beyond the suburbs of Columbus, Neb., there is one of these prairie dog villages, in a most flourishing condition. The little fellows sit upright on their holes as the train of cars passes right through their settlement, showing no signs of fear, but

apparently a deal of curiosity as to who may be on board. No one ever thinks of disturbing these very attractive animals. It is still a mooted question as to how they procure their water. Professor Aughey, of the Nebraska State University, once informed the writer that he believed the prairie dogs had a circular well in the center of each village, running down several hundred feet to water, and that this well was connected by subterranean passages with the "homes" of the prairie dogs. If this be the case, it certainly affords a remarkable illustration of animal intelligence.



Prairie Views.—The accompanying picture affords our Eastern readers a very good idea of the prairie farms beyond the Missouri, as seen from an elevated point. The view is taken from a region, one hundred and fifty miles west of the Missouri River. In place of fences are seen long rows of cottonwood and box-elder trees, which make a dividing line between the farms and also the fields. Little houses dot the farms in every direction, and a miniature river winds through the lowlands far away to the distant line of hills, through which it cuts its course to water still another broad plateau. The broad fields of wheat and corn in this part of Kansas would delight the eyes of the small Eastern farmer, who had never travelled beyond the limits of his own diminutive fields. As I stated in my correspondence last month, box-elder, soft maple, and white-ash, are now considered better trees than the cottonwood, at least for low prairie lands.

Large Breeding Ranches.—In Wyoming and adjoining parts of the West, cattle ranches are being absorbed by stock companies, English capitalists as well as our own being interested in them. The business, it is claimed, is one that can be most profitably carried on upon a large scale, as a few competent herders can manage a ranch containing thousands as well as one of a few hundreds, and the expense of other subordinates is proportionably diminished. Of late, many fine Norman stallions have been imported, to be placed on the Western ranches. M. W. Dunham, of Oakland Farm, the well known Illinois importer and breeder, has become interested in one of these enterprises. His large recent importation of Norman Percheron stallions is made with a view to placing them upon the extended ranches in the northern part of Colorado, where they will be employed in producing the large work horses, now largely in demand at the West, and in Eastern cities.

The Corn Crop.—Corn, which looked so unpromising in June, has since, under the more favorable weather, regained its lost ground, and come forward with remarkable rapidity. The prospects for this important crop are now everywhere good. This is most satisfactory, after the early apprehensions, as an abundant crop of corn means a full supply of pork and all other hog products; this is of quite as much importance to the small farmer in securing him his stock of winter provisions as it is to those who raise hogs in large numbers for the packers. The corn crop is of course equally important for finishing off beef for slaughter, and the winter dairies of the West depend for their product of butter upon this golden grain. Its abundance, therefore, really determines the value of a great part of our agricultural wealth. Fair as are the prospects at the time of writing, it is too early to predict with confidence a great harvest. High winds and early frosts may do great injury, and a long drouth would decrease the crop. D. W. J.

Raising Thorough-bred Pigs.

BY JOSEPH HARRIS, AUTHOR OF "WALKS AND TALKS ON THE FARM," ETC.

It may be thought that there is no difference in the management of thorough-bred and ordinary pigs; and to a certain extent this is true. But we all know that, as ordinarily managed, a very large number of young pigs are lost every year. How often do we hear farmers say, "My sow had a litter of ten pigs, but the brute killed half of them." In many cases the loss is even greater than this. Sometimes sows will eat their own pigs, but the greatest loss occurs from the sow, unintentionally, lying down on the little pigs and crushing them to death. With ordinary pigs the loss is sufficiently aggravating, but with thorough-bred pigs of great value, the loss is peculiarly vexatious and discouraging.

There is no way of preventing a sow from lying on her pigs. There is nothing for it but watchfulness and care. All mechanical contrivances are useless. It is generally recommended to place a rail horizontally all around the inside of the pen, about a foot distant from the sides and some eight or ten inches from the floor of the pen. The object of this is to prevent the sow from crushing her little pigs against the sides of the pen. It was thought that the little ones could run under the rail and escape. Nearly all my pens are so constructed, but I can see no advantage in the plan. We all want to provide a farrowing sow with straw or leaves enough to keep her comfortable. Sometimes we use straw that has been run through a cutting-box, and sometimes we make use of it the full length. I do not know that it makes much difference which is used, though I formerly thought the chaffed straw was better. One thing I know—no matter whether you use long straw, or short straw, a sow about to have pigs will push the straw under the rail, until it is as firm and compact as the sides of the pen would be if no rail was there. A little pig, if caught against this compact mass of straw, would be as certainly killed as if the sow lay against the sides of the pen. You cannot cure a sow of this habit. She knows what she is about. She wants her little pigs to get to the teats; and the only way she has of accomplishing this object is to prevent them from getting on the wrong side of her, by placing her back firmly against the sides of the pen. If necessary, she will use every bit of straw there is in the pen for filling up the space under the rail where she makes her nest. If you give her straw enough, the rail is an advantage, for the compact straw under the rail makes a warmer nest, but it is otherwise useless.

The great point in the management of farrowing sows is to make them as quiet and gentle as possible. If you are raising thorough-bred pigs, make pets of them. The sow, when about to have pigs, should be placed in a separate pen for several days in advance, so that she shall become quiet and accustomed to the pen. Her food should consist principally of warm water with a little grease in it, with say a quart of bran to a ten-quart pail of water. There is nothing better for her, after she has had her pigs, than this same warm water and grease, gradually made richer by the use of more bran and of meal. A few hours before farrowing the milk always comes into the teats. It is a good plan, especially in the case of thorough-bred sows, to accustom them to the presence of some one in the pen. There is nothing a sow so well likes as to have her teats rubbed or milked. By a little gentleness, and by rubbing and milking her teats, it is an easy matter to make the sow lie down.

In the summer-time, I frequently let my sows farrow in the field, and almost invariably without loss. The sows make their own nests in a fence corner, and manage the whole matter quite as well as if the best of us were present to direct the operation. Do not conclude from this, however, that the less you look after your breeding sows the better. The weather is warm, the sow is living on succulent grass, and everything is favorable. More pigs are lost from cold than from all other causes combined. It is useless to try to make the pens warm by artificial means, for in this case you are almost certain to get bad ventilation and to do more harm than good.

Fires and Fire Places.

Every house should have in the principal, or living room, at least, a fireplace, if only for use in summer, or in the warm months. There is rarely a month in which there is not a long and cold storm, or if it is not cold, there is an all-pervading dampness, which requires a fire to remove it. In the Northern States, the present month and the next are among the most enjoyable, as to weather, of all the twelve. Yet cold storms of several days duration are frequent, and if there are not such storms, warm, genial days are followed by chilly nights, bringing a change so great, that only the most robust can endure it, and the foundation of serious illness is often laid at this time. At this season a fire, especially at night, is often needed for both comfort and health, and no house should be without a provision for it. While a fire in a stove is vastly better than none at all, by all means, where possible, have it in an open fireplace. Aside from its social effect, the air of cheerfulness which a fire on the hearth brings with it, such a fire also brings ventilation, a change of air, a removal of dampness and stagnation, such as a close stove does not afford. In our climate we rarely have a month, even in summer, in which a fire is not at times needed. Were the provisions for making it more general, we should hear much less of "malaria." *Mal-aria* means bad air; good air comes with an open fire, as well as brightness and cheerfulness.

Leaves and their Labor.

The number of people who are ignorant of the simplest processes of vegetation is surprising. Men whose whole life-work has been performed among growing plants, have only the most remote ideas concerning the functions of roots and stems, while the leaves in particular seem to have received less attention than any of the other organs. Their external characteristics, form, size, color, etc., are patent to the least observing, and the farmer's lad, who is familiar with every tree or shrub he meets in his rambles, depends half unconsciously upon them for his distinctions. Leaves have a peculiar and special share in the work of vegetation, and the manner in which they perform their labor is not plainly understood by a great many people.

The most casual observation shows that every leaf is constructed of an intricate network of "veins," as they are commonly called, running through a soft pulpy substance. This framework

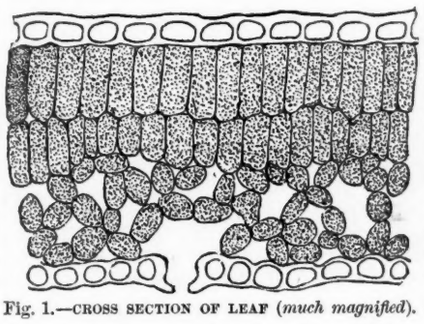


Fig. 1.—CROSS SECTION OF LEAF (*much magnified*).

is composed of woody fibres, its purpose being to support and distend the softer parts of the leaf. Accompanying these fibres through all their branchings, and usually running a little beyond their extremities into the green tissue, are minute tubes or vessels. Follow these back to the midrib of the leaf, and we find that they continue still farther, connecting with the circulatory system of the stem, which in turn extends down to the roots. This line of vessels, therefore, provides a direct course for the passage of the fluids absorbed by the roots, to the most remote portions of the leaves. It arrives there, however, in a crude condition, containing small amounts of mineral matters—potash, soda, lime, etc.—dissolved in a comparatively large amount of water, and wholly unfit to meet the uses of the plant. The superfluous water must be disposed of, and its contents must be changed into new forms by the action of air and sunlight. Just here the peculiar structure of the green, pulpy portion of the leaf comes in play. The upper and under surfaces are covered with a thin membrane of colorless cells; just under this, on the upper side of the leaf, are one or two rows of cells, standing vertically one above the other, and crowded together very closely, but on the under

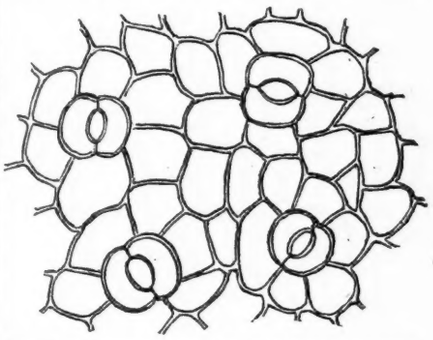


Fig. 2.—BREATHING PORES OF LEAF (*much magnified*).

side they are arranged loosely and irregularly, and are often separated by large empty spaces. Figure 1 is a vertical cross section of a leaf showing this structure. The vessels containing the crude and dilute sap mingle with these loosely gathered cells on the under side, and are exposed to the empty spaces just as the blood vessels of an animal are exposed to the air sacs of its lungs. It is here that the digesting and purifying of the sap takes place. These intercellular spaces are connected with the air through great numbers of minute openings in the membranes already spoken of as covering the surfaces of the leaf. Figure 2 gives a surface view of four of these pores, surrounded by the peculiar, crescent shaped "guard cells." A section through one of the stomata or breathing pores is shown on the lower side of figure 1.

The water contained in the vessels passes freely through their walls, and fills the intercellular spaces in the form of vapor, which from here passes out through the breathing pores. Now if these pores were simple openings, the work of evaporation would go on very unequally; in dry, hot weather, it would be greatly increased, but would almost cease when the air was laden with moisture, while the interests of the plant require that just the opposite should happen. Therefore, we find these pores working as nicely as the governor of a steam engine, opening under the influence of light to accomodate the increased activity within the plant, partially closing when the air becomes dry and hot, and thrown wide open when it is charged with moisture. Air with its gases, passes freely in and out of the breathing pores, and mingling with the contents of the cells and vessels, aids in converting the raw sap into the material for new growth or stored up as food as the case may be. But the work of the leaves does not end here. One of their most important functions, is the collecting of carbonic acid gas from the air, and by the action of their green coloring matter, to combine it with the elements of the sap to form the constituents of growth. These compounds containing carbon form about fifty per cent of the bulk of the plant, so we see that the leaves are really the most active portions of the vegetable organism, collecting fully one-half the food, and combining it with that furnished by the roots into the complex constituents of the perfectly developed plant. The chemical processes, which occur in the leaf, are too complicated for discussion here, but its anatomy, the utility of all its parts and the harmony with which they perform their work, are easily understood, and furnish us one of the best examples of the detailed perfection of nature's work.

Soil Temperatures.

The temperature of the soil is an important element in the growth and maturity of crops. It is to the roots what the temperature of the air is to the foliage, and influences the whole life of the plant. Hence the study of its governing laws and principles is an exceedingly important one. A series of investigations have been instituted at "Houghton Farm," for the purpose of acquiring a better knowledge in this field. One season has already been devoted to the work, which is still being carried on with the intention of obtaining a large amount of data and repeated experience, before attempting to deduce laws. Many interesting facts have been noted, however, and it is the purpose of this article to give a brief review of observations, which have been discussed at greater length in a published report.

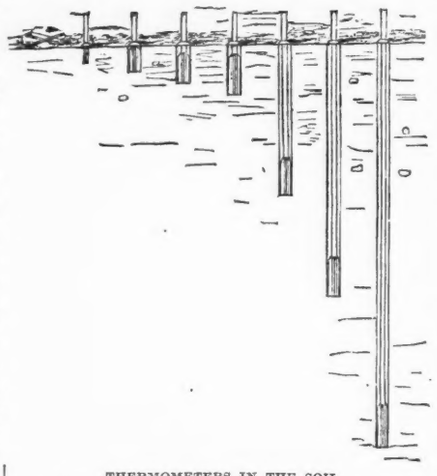
So far as agricultural operations are concerned, the sun is the principal source of heat in the soil, although chemical changes produce an appreciable effect. The amount of heat absorbed from the sun does not determine the temperature of the soil: other natural causes, such as radiation from the surface, the amount of moisture in the soil and air, and the color, and chemical and mechanical condition of the soil itself, all have a modifying influence.

The soil, in which observations were made, was a gravel containing some clay with a clayey subsoil, without a crop, and undisturbed during the season. The manner of taking the temperature was as follows: Accurate thermometers were fastened in the hollow extremities of light wooden rods, and these were inserted to different depths in the soil, in closely fitting zinc tubes, from which they could be easily withdrawn for reading. The thermometer bulbs were enclosed in cisterns of oil, to prevent the too rapid effect of the air temperature on the reading of the mercury. The zinc tubes were kept filled with water, which surrounded the thermometer, and prevented conduction of heat from above. The temperature of the surface soil was taken by means of a thermometer, with its naked bulb in the loose soil. Thermometers were placed at the following depths: surface, three inches, six inches, nine inches, one foot, three feet, five feet, and eight feet. These were read hourly from 7 A. M. to 9 P. M., from May 1st to October 31st. and an accurate record kept of their readings. The temperature and relative humidity of the air was also recorded every hour.

The temperature of the soil, following the changes in the air, is constantly fluctuating, and hourly, daily, and monthly variations were observed. The first are confined to the upper layers of the soil, with which most of our crops have to deal. These changes are often sudden and violent, and may be produced by a variety of causes.—For instance, a sudden shifting of the wind from south to north, and the clearing up of a cloudy sky just at sunset, caused a fall of 24 degrees F. in one hour; a thunder storm caused a fall of 16° F., and a sudden clouding over of the sky, obscuring the sun, a fall of 17° F. in one hour, in the surface soil. These changes lose their abruptness as we go below the surface, until at a depth of one foot, there is rarely a variation of more than one or two degrees in an hour. In the same layers of soil, which are subject to hourly variations, there is also a wide range of temperature in every twenty-four hours, caused by excessive absorption of heat by day, and radiation in the night. This range is greatly reduced if the sun be obscured during the day, if it be rainy, or if the ground be filled with moisture. The surface soil is subject to these changes in much the same degree as the air, and the daily range is often 40° to 50° F. during the hot summer months, while it may be as little as 5° F., rarely less. Lower down the change is less, but is plainly felt to a depth of one foot or more.

On an ordinary summer's day, the maximum temperature at the surface comes about midday, and the minimum a little after midnight. These extremes are a little later at the successive depths below the surface, until at one foot they are retarded some eight or ten hours, and we have the curious feature at evening of the one foot thermometer rising, while that at the surface is falling, and again in the morning their movements are reversed. Both the daily range and hourly variations of temperature are checked by the presence of moisture in the soil, and in the six months' observations the extremes occurred during drouths.

Beginning in the spring, there is a constant rise in the temperature of the soil, easily observed at a depth of eight feet. Storms or cold cloudy weather will check this advance, but only temporarily, and their influence is rarely felt below one foot. After the summer heat is passed, begins the decline, and so steadily does this increase and decrease occur, that if it were graphically depicted, we should have a broad easy curve rising from May to July and August, and then falling in the same manner. It is noticeable, that this change of the average daily temperature is greatest during the Spring and Autumn months, when there is most



THERMOMETERS IN THE SOIL.

moisture in the soil. Of course, this is largely explained by the fact, that the soil is passing from one extreme of temperature to another by rapid transitions, but the influence of the constantly varying amounts of watery vapor in the soil, produced by evaporation, must not be overlooked. These changes extend to a depth of eight feet and probably lower, but no temporary decrease in temperature at the surface was observed to penetrate below three feet, and rarely to this distance. From three feet down there was a constant and unbroken rise from May 22d to September 1st, and the eight-foot thermometer did not begin to fall until September 23d.

The mean temperature at the different depths observed for the six months, from May to October inclusive, were as follows: surface, 66.4°; 3 inches, 65.3°; 5 inches, 65.3°; 9 inches, 65.3°; 1 foot, 64.2°; 3 feet, 62.8°; 5 feet. 58.6°; 8 feet, 55.8. That is, at a depth of eight feet the mean temperature for six months was only 10.6° lower than at the surface. During the month of October, the average temperature at eight feet was higher by 3.8°; at a depth of five feet by 4.1°; at three feet, 4.5°; at one foot, 2.2°; than the average at the surface. From this it appears, that during the Fall months, when the temperature of the upper layers of the soil is falling, there is a zone of subsoil beginning at a depth of one foot or lower, as the cooling off at the surface progresses, and extending to an indefinite depth, which is from two to four degrees higher in temperature than the soil above. If we consider that this excess is being constantly radiated upward, we shall see that this warm zone, or the stored-up heat which it contains, must have an appreciative effect in elevating the temperature of the surface soil, and prolonging the season. In the same way, the heat absorbed from the sun each day, by its radiation during the night, averts frost, and maintains a more nearly even temperature.

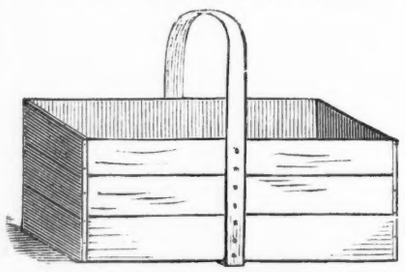
The moisture in the soil is an important factor in this problem, but its study is very complicated.

A Late Sowing of Turnips.

Turnips may be divided into three classes, according to the length of time they require to mamature: 1st. The Ruta Baga Turnips.—These require a long season; they must be sown early, and are the best keepers, lasting well into spring. These are sown in May and June. 2. Intermediate Turnips, which may be sown in July and August, and make a good crop. With proper land, and well cultivated, they often yield largely and pay well. The leading varieties of this class are: the Yellowstone, the Yellow Aberdeen, and the Cow Horn, which last is intermediate between this class and the next. Either of these may be sown in August, and yield a profitable crop. The Aberdeen is a popular market sort, and remains in good condition until the end of winter. Lastly, the Late or Autumn-sown Turnips, of which the Red-top Strapleaf is the most popular. These may be sown during the first half of the present month. It is not giving any kind of turnips the best culture to sow the seed broadcast, but with a "catch crop," on stubble or upon other crops, to occupy the ground when they come off, it is the most available method. Those who grow sweet-corn, at the last hoeing, often sow turnip seed broadcast, and after the corn-stalks are cut off, get a valuable crop of turnips. The most profitable method, one that is most likely to yield a good crop, is to plow and thoroughly prepare land that has been devoted to some well manured crop. The use of the harrow and roller after the plow will bring the soil into good condition. If the land has been well manured for the previous crop, three hundred pounds of superphosphate to the acre will be likely to give a paying yield of turnips. Drill the seed in rows wide enough to allow the cultivator to run between, say twenty-four or thirty inches. Three or four pounds of seed to the acre will be needed. When the plants are well up, use a sharp hoe, with a blade six inches wide, cutting out all the plants but a few, which are to be left in bunches at this distance. In a few days, go over and remove by hand all but the strongest plant in each bunch, taking care to leave that one well set in the soil; if disturbed by pulling up the others, press the earth firmly around it. Use the cultivator between the rows as often as necessary, and in a favorable season a profitable crop may be harvested.

A Convenient Bailed Box.

The common box with a bail, or handle, is a useful farm appliance; it answers the purpose of a basket, is much more durable, and a great deal cheaper. Some of our readers may not be familiar with this box, and we accordingly describe one for their benefit. Instead of a flat bail, we would suggest, for heavy work, a green hickory or other tough stick, to be chamfered off where it is nailed to the sides of the box, the portion for



the hand being, of course, left round. It will be found useful to have these boxes of a definite size, to hold a half bushel or a bushel. A legal bushel is two thousand one hundred and fifty (and a fraction) cubic inches. A box may be made of this capacity of any desired shape. Ends a foot square, and side pieces and the bottom eighteen and a half inches long, will make a bushel box. If desired narrower, make the ends eight inches high and fourteen inches wide, with the sides and bottom two feet long. Such a box holds a very little more than an even bushel. It is inexpensive.

A Barn Costing $900 to $1,000.

FIRST PRIZE IN CLASS I.

The barn, illustrated in figures 1, 2, 3, and 4, is one of sufficient size to hold all the hay, grain, and stock kept on a one-hundred-acre farm. It is built with the barn floor lengthwise, and elevated five feet above the level of the foundation. The barn is fifty by seventy feet, with the sides sixteen feet

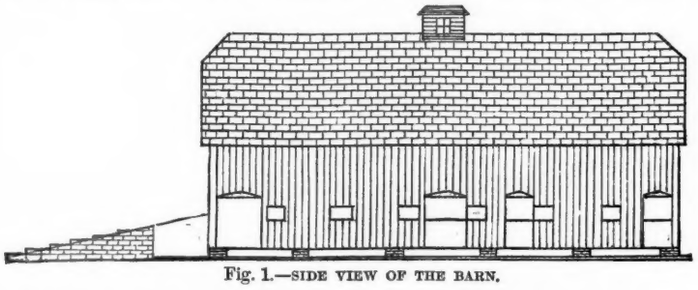


Fig. 1.—SIDE VIEW OF THE BARN.

high and thirty-two feet to the gables. The pitch of the roof is almost one-third. The gables are cottage-roofed for four feet down, giving a neat appearance. The center of the roof is surmounted by a ventilator, containing a window in each side. These, with a large window in each end of the barn, light the lofts sufficiently. The root cellar is twelve by twenty-two feet inside. There are six bents, as in figure 4. On the side containing the horse stable, the center mow-posts extend to the foundation, except one, which comes down in the horse stable. On the cattle side, three come to the foundation; the remaining three are cut short and framed into the loft beams. There are six plates, which join the frame solidly together. There are no other beams except the breast beams, which are four feet above the floor. This gives an unobstructed mow between each bent, making it extremely convenient for using hay-forks and elevators. In the center of the barn, over the floor, the first cross-beam should be left out, as it is too

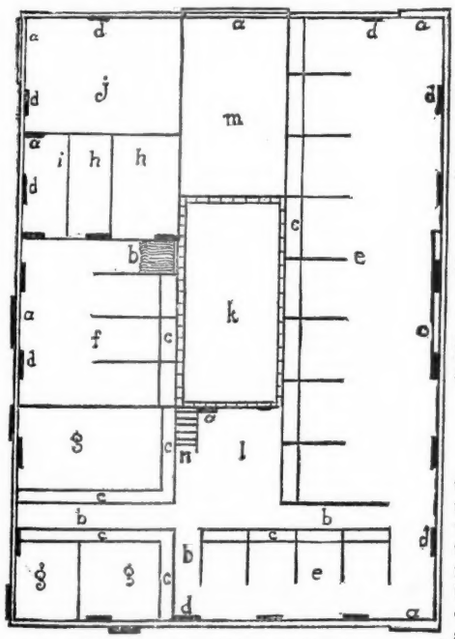


Fig. 2.—GROUND PLAN OF BARN.

low, and would hinder work. The floor extends to the division between the cellar and the cut-feed room. The latter is floored over, and forms a mow twenty-five by fifty feet. The cattle stable (*e*, figure 2) has double stalls for twenty-four head of cattle. The large stalls are seven feet wide, and the small ones are five and a half feet wide. The mangers should not be over fourteen inches high. There are two sheep pens, *g*, *g*, large enough to house twenty sheep. The corner pen may be divided by a movable partition at lambing time. Passages on two sides of each pen give good opportunity for feeding. The horse stable, *f*, has stalls five feet wide, for three horses. A passage, with a sloping and cross-slatted floor, leads to the barn floor, so that horses may be taken from the wagon to their stalls without going out of doors. Slip-doors in the side of the same passage give ready access either from the stable or barn floor to the oat and meal bins, *h*, *h*. The harness-room, *i*, is six by twelve feet, lighted by one window, and convenient to the stable. The buggy-room is lighted by two windows, and connects by a door with the harness-room, and thence to the stable. The room, *l*, is on a level with the stables; a stair, *n*, leads to the floor above, and a door connects with the cellar. In this room is a root-cutter, and a large box in which to mix roots and cut straw. The root-cellar, *k*, is twelve by twenty-two feet inside, which can be filled through a trap-door in the floor above. The store-room, *m*, extends under the "bridge" or entrance. The horses and cattle are fed from the floor; the sheep and young cattle have their feed taken from the floor through the cut-feed room, or the uncut rough feed may be dropped through shutes from the mow above. A large watering-trough, *o*, is placed in the cow stable, for use in stormy weather. A sled may be used for removing the manure from the stable to the field or compost heap. All the stables are well lighted by the numerous windows, which slide back to give air when necessary. The exact cost, in any particular case, cannot be stated, owing to the variation in prices of lumber and labor in different places; but with the amount of material known, the cost can soon be estimated.

Estimate.—Cost of Materials and Labor.

7,000 feet Flooring, 2-inch, @ $14 ℗ M.	$98 00
2,960 feet Lofting, 1-inch, @ $10 ℗ M.	29.60
4,392 feet Sheeting, 1-inch, @ $10 ℗ M.	43.92
31,576 Shingles, @ $3 ℗ M.	94.72
18 Windows, 2 by 3 feet, @ 80c. each	14.40
2 Windows, 3 by 4 feet, @ $1 each	2.00
2 Windows, 2 by 2 feet, @ 60c. each	1.20
2,240 feet 16-ft. Siding, 1-inch, @ $14 ℗ M.	31.36
1,400 feet 14-ft. Siding, 1-inch, @ $14 ℗ M.	19.60
2,000 feet 20 ft. to cut Gables, 1-inch, @ $14 ℗ M.	28.00
16,000 Bricks, @ $4 ℗ M.	64.00
2,986 feet Brace Scantling, 3 by 4-inch, @ $14 ℗ M.	41.80
960 feet Rafter Scantling, 2 by 4-inch, @ $14 ℗ M.	13.44
500 feet Stall Lumber, 1-inch, @ $14 ℗ M.	7.00
1,000 feet Lumber and Scantling for Sheep Pens and incidentals, 1-inch, @ $12 ℗ M.	12.00
Lime and Brick Laying	65.00
Nails, Hinges, Cattle Chains and Slide Bars	80.00
1,160 feet 16-ft. Rafters, 1-inch, @ $14 ℗ M.	16.24
Carpenter Work	300.00
Total cost	$962.28

MANY farmers are content to cultivate or scarify the soil, where crops are grown, only so often as may be necessary to destroy weeds. Of necessity, we must stop the cultivation of potatoes about the time they begin to blossom, but most other crops may be cultivated until the fruit is in sight. This is especially true of the corn crop, which may be cultivated lightly with great benefit until the ears are in milk. There is some danger from breaking the ears unless the rows are three and a half or four feet apart. The practice of planting corn in drills one stalk in a place about a foot apart, favors frequent and late cultivation. Scarifying the soil, even into September, is a substitute for manure, and increases the yield of grain, and the weight of stover, which is a valuable part of this crop in all the Northern States. Late cabbages, ruta bagas, turnips, and beets cultivated for stock, are greatly benefited by frequent and late cultivation. The scarifying of the surface of the soil breaks the crust, and increases the circulation of both air and moisture through the earth and among the roots.

State Bounty vs. Town Bounty on Foxes.

My neighbor is a persevering turkey-raiser, amid manifold discouragements. Last year he had poor luck, because his young turkeys, running with the hen that hatched them in a very limited range about the house, became "verminized," and dropped off mysteriously. A cent's worth of kerosene, properly distributed, would have killed every louse, and given the birds a chance to die at Christmas, with some compensation to the owner. This year he concluded to let turkey hens do the hatching and raising of the broods. He had grand luck, and with two hens got thirty young ones out of the shell and well into the summer, through the most critical period of their lives. He was faithful in watching the young broods, and saw them safely home and securely sheltered from vermin every night. One of the long hot days in June he became very tired, and thought it was a little too much trouble to look after his young broods. They did not come home, and the next morning he found the old hens slain by the foxes, and twenty-two of the young turkeys missing. The hens were worth two dollars each, and the young ones fifty cents

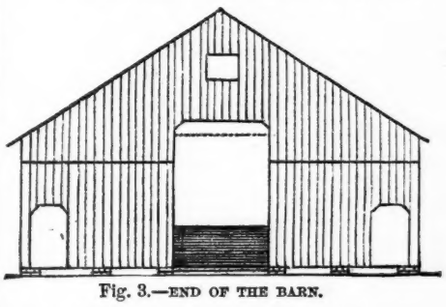


Fig. 3.—END OF THE BARN.

each, making him out of pocket fifteen dollars, for the want of a permanent State bounty on foxes. The common town bounty offered for the destruction of this pest works in this wise. The loss to farmers who raise poultry, in turkeys, geese, ducks, chickens, amounts to thousands of dollars annually, after any period of neglect, in which the

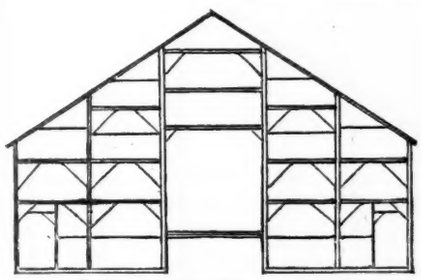


Fig. 4.—ONE OF THE SIX BENTS.

foxes have had time to multiply, in almost any agricultural town. It is so severely felt, and the visitations to the poultry yards are so evenly distributed, that virtuous indignation seizes all the freeholders, and at the first town meeting a bounty of five dollars is almost unanimously voted on every fox head presented to the town treasurer's office. The foxes, of course, must be killed within the town. The thrifty farmers of Shadwell have no notion of paying for foxes caught in Bungtown, although the Bungtown foxes have no respect for town boundaries, and invade Shadwell every night. Under the five dollar bounty, foxes are hunted and begin to grow scarce. The old hunters, fond of the sport, invest in fox-hounds, and when the light snows of early winter come, there is a general muster of all the hunters, and the music of hounds is heard over all the hills and valleys. The holes of foxes are invaded every spring, and sometimes a lucky hunter digs from a single hole a half-dozen young ones, and draws from the treasury thirty dollars, as the reward of a

morning's work. This is making money quite too fast in a rural community, and a spasm of economy seizes the freeholders, and at the next town meeting the bounty is put down to a dollar, or withdrawn altogether. In two or three years the foxes are as numerous as ever, and many farmers give up raising turkeys, because of the insecurity of the crop. What is wanted in all our Northern States is a State bounty upon foxes of ten dollars or more, payable at each town treasury in which the foxes are caught. This bounty from the State should be kept on persistently, until the foxes are as scarce as bears or wolves. This would make poultry raising comparatively secure, and greatly enlarge the profits of every farming region. The interests to be protected are immense, and are as great in the longest settled parts of the Eastern States as in newer sections. Those legislators who read the *American Agriculturist* should promote their own popularity by giving the matter early attention. We want fewer foxes and more turkeys. C.

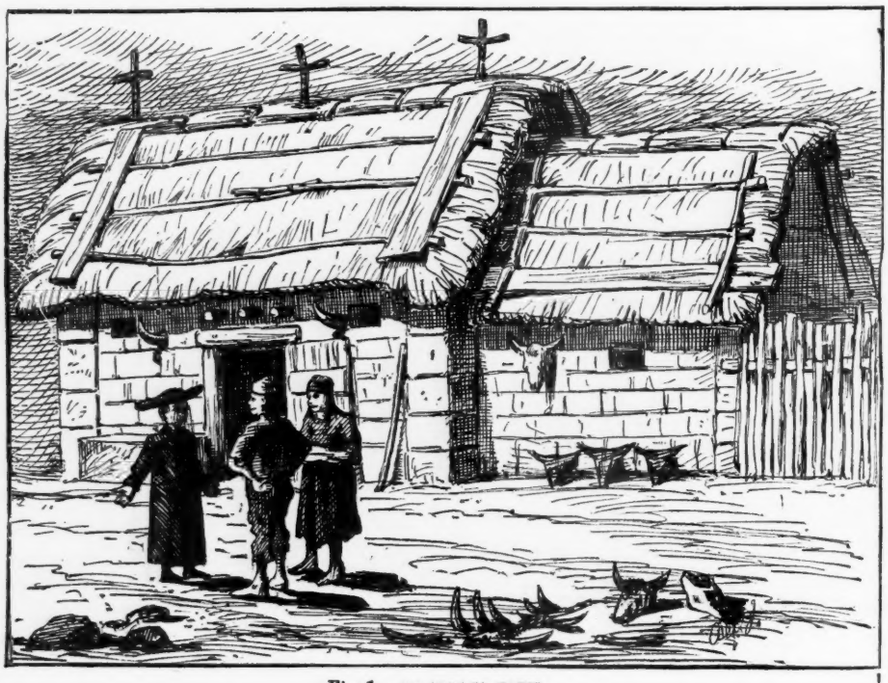


Fig. 1.—AN ALPACA FARM.

Fig. 2.—ALPACA IN FULL DRESS.

Alpaca Farming.

ALFRED TRUMBLE.

It was in a bitter wind storm, on the desolate table lands of the Peruvian Andes, that I first saw a ludicrously ungainly beast pop up from behind a rock, as the stumbling feet of my mule sent some loose stones rolling noisily down a precipice. The brute surveyed me for an instant, then shook his hairy head, gave a loud snort, and vanished. The echoes of the lonely pass bore to my ears a singular noise, as if an army of barefooted men was flying down the mountain. I had startled a herd of grazing Alpacas, and their sentry had warned them of my approach. The noise was the beating of their huge, cartilage-padded feet on the rocky ground. As I rode on, I saw flocks from time to time, grubbing the sparse grass from the rock-sprinkled levels and the steep declivities, which are such a peculiar feature of the heart of the Andes. There was always one big fellow perched on a rock, or at some other point of vantage, and at his snort the whole herd would turn tail and take to flight. Often I would see the sentry, without seeing his comrades, balanced far above me on some splintered pinnacle of stone, with his big, soft eyes fixed on me, ready to give the signal, as soon as he considered my proximity dangerous. It was a singular sensation, the meeting with this alert brute, the only living thing but myself and mule and an occasional condor, among these desolate mountains, whose peaks pierced the sky in a line of savage teeth, like a huge saw. That evening, on a rock-strewn plateau, without a bush and, almost without a blade of grass around it, I halted at a dreary, stone built house, with a roof made of bundles of straw, held down with planks and stout saplings. Skulls and skeletons of horned cattle and other animals were scattered all around. From the wall of the house projected a couple of big bull's horns, apparently cemented in the masonry for ornamental purposes. As I drew rein, a terrific snorting and scrambling broke out in a paddock, fenced with stout poles, behind the house. This was an Alpaca farm (fig. 1).

The Alpaca, which many people confuse with the Llama, though very closely allied to it in form and characteristics, is the "gold mine" of the Indians of the Andes, especially those of Peru, Bolivia, and Chili. It is an extraordinary brute, in more senses than one. Its appearance, with its wool on (figure 2), is supremely ridiculous. It is as large as a big sheep, with a neck like a small giraffe; a mere bundle of hair carried around on four legs, terminated with feet resembling those of an ostrich. Its legs are powerful, and inappropriately graceful, in comparison with the body they support and the feet in which they terminate.

If the Alpaca is absurdly ugly with its hair on, it is a positive burlesque after it has been sheared (figure 3). It is sheared like a sheep, only its head is left covered. It is sometimes sheared once a year, yielding a six to eight-inch fleece, but the more provident Alpaca farmers only shear once in two or three years, when they get wool from fifteen to thirty inches long. The wool is found ranging in color from white through gray, yellow, and brown to black. The animal looks black, however, as the fleece exudes an oil, and mats with the dust of the mountain pastures in which it roams at large. The fleece is very fine in texture, metallic in lustre when clean, and the fibre is far stronger than that of any sheep's wool which I know.

The Alpaca is allowed to graze at random, only being "rounded in" to be sheared. It can only be domesticated when young. An old Alpaca, separated from its flock, will lie down and die of pure stubbornness and grief. Young Alpacas are, however, herded in paddocks, and become as familiar, quiet, and impudent as dogs.

They are gentle brutes, unlike their cousins, the Llamas, which are often full of viciousness. The Alpaca never gets over its shy and timorous wild habits, and though it seems to know and not fear the farmer and his men, the mere sight of a stranger in the distance will stampede it. The age to which an Alpaca will produce valuable wool, none of the farmers seem to know. When it ceases to be worth shearing, they kill and eat it.

The Alpaca farmer leads a life little better than that of the brute he lives on. His home is desolation itself. His only amusement is eating and sleeping. He scarcely knows even the vice of drunkenness. Except a chance traveller, he never sees a soul from year's end to year's end but the priest, commonly an Indian like himself, who strays up now and then from his home in the lower regions to collect his mass money, and the wool trader who once a year makes the rounds with his peons, or Indian servants, and his train of pack

Fig. 3.—ALPACA IN UNDRESS.

animals. Most of the trading is half barter and half money. The visit of the trader is a great occasion. Then the old iron scales are brought out and hung on the bull's horn at the door, and the year's harvest raked down from the loft of the house, where it

Fig. 4.—SELLING THE CROP.

has been stored. It is a curious fact that the Alpaca farmer will never let a trader use any other scales. He is afraid of being cheated. But he lets the trader weigh the wool with his own weights, and I fancy the trader is satisfied with the bargain.

During the solitary portion of the year the women of the Alpaca farm card and spin the wool, and weave it into blankets and ponchos, or cloaks, which latter are simply blankets with a hole in the middle for the head to pass through. The wool trader in figure 4 wears a poncho. These ponchos are sometimes ornamented with grotesque but effective patterns in dyed wool. They are sold, like the wool, to traders who carry them to the coast.

The region of the Alpaca farmers is the most dreary and inhospitable on the continent. The

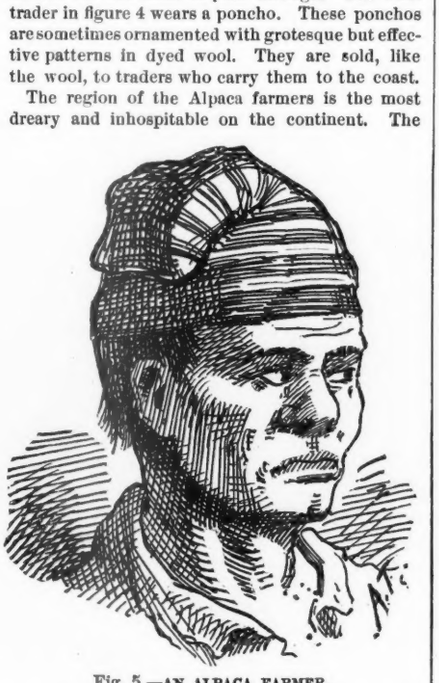


Fig. 5.—AN ALPACA FARMER.

nights at these high levels are always bitter cold, and the air is so thin that bullocks brought up to the plateaus soon die, apparently of consumption. The land produces only potatoes, tiny, hard as bullets, and bitter as quinine. These can only be eaten after the bitterness has been roasted out of them. The houses are built as regular fortresses against the weather. They only have a couple of small loopholes for ventilation, and the stench at night, when the doors are closed, and the oily reek of the wool overhead pervades and mingles with that of unwashed humanity, is simply abominable. The Alpaca farmer is a creature of the earth, ignorant and superstitious, but he is a mild-natured fellow, and is nominally a Christian. His life is a miserable one, but he alone is fitted to live it. It is as impossible for a denizen of the coast country or a European to exist among the mountains, as it has been found to acclimatize the Alpaca in civilized countries. In my ride across from Lima into Bolivia, I suffered almost as great inconveniences and miseries in breathing and in rushes of blood to my head, as I experienced a year ago in a descent into the compressed air inside the lock of the Hudson River tunnel.

About the only thing that will stir an Alpaca farmer up to rage, is the wanton killing of one of his sheep. Travellers sometimes make free with their revolvers among the flocks, and several murders have occurred in consequence. In every case the murderer was an Alpaca farmer, who thus avenged himself for the injury done his property.

Unlike the Llama, the Alpaca cannot be used as a bearer of burdens. It makes its only concession to man when it permits him to deprive it of its fleece. The Llama produces a fleece also, but it is coarser and less beautiful than the Alpaca's, besides being different in texture. Of late years, Alpaca wool has been considerably adulterated with that of the Llama, but this is the work of the traders. The sharp practises of our acute modern business systems have not yet infected the simple denizen of the mountains. As civilization is rapidly invading even the Andes, it will not be safe to calculate too far on the Alpaca farmer remaining innocent of the tricks of trade.

The New York Cattle Quarantine.

The United States Cattle Quarantine Station for the port of New York is located at Garfield, N. J., twelve miles from New York City. It comprises forty acres of ground, devoted to stables, and adjoining yards. About a dozen of these stables are erected, and others are building. They vary in size, from those holding a small importation of four or five head, to those with a double line of stalls, accommodating thirty or more cattle.

All cattle arriving at New York from Europe, Asia, Africa, Australia, or New Zealand, must be quarantined at these grounds for ninety days, dating from the time of shipment. The imported animals are all examined by the Government Inspector before they leave the wharves. If suffering from lung plague, rinderpest, or other dangerous contagious disease, they are not removed to the regular quarantine, but dealt with as the Government authorities may determine. While cattle are arriving at or departing from quarantine, all other animals are rigidly confined to their sheds. Only those arriving by the same ship can occupy stables together. The food and attendance are provided by the owner of the stock quarantined, and the employés of such owners keep the stables and yards clean, under directions of the superintendent.

The Station has only been open for cattle for a few weeks, and we found only one hundred and three animals passing through quarantine. Among these was a small herd of four Swiss cattle in fine condition, a lot of young stock from the Island of Guernsey, and a herd of Dutch Friesian cows, yearlings and calves from Holland. The stables are commodious and well ventilated. There is a store-room for feed, and a pen for the manure. The dung is held in quarantine for three months after the animals voiding it have gone, and is subsequently removed from the grounds.

There are three other Quarantine Stations in the United States, namely, at Portland, Me., Boston, Mass., and Baltimore, Md. The inspector makes a daily round, and notes the condition of the animals. In case of the appearance of any dangerous disease of a contagious nature, the inspector notifies the chairman of the Treasury Cattle Commission, and after a thorough inspection, the affected herd is disposed of according to the gravity of the disease. Dr. A. M. Farrington is the veterinary inspector and superintendent at Garfield, N. J.

Bee Notes for September.

In many parts of the United States, the autumn honey harvest is little inferior to that of June and July. The honey of the aster and golden rod is golden rather than light-colored, but in flavor it is not surpassed by that from any other source. By a little care, we have found no difficulty in securing honey from autumn flowers that was pronounced by judges as of the best quality. Care, then, should be taken to give the bees opportunity to secure this autumn harvest in "sections." Sufficient extracting should be done to keep the queen laying to the full extent of her capacity. If there is a good market for the extracted honey at half the price secured for comb honey, we may well extract as rapidly as the bees gather, commencing the work just as the bees begin to cap the honey.

PREPARATION FOR WINTER.

The apiarist should prepare his bees for winter as soon as the frost makes all farther gathering of honey impossible. Examination will show whether there is sufficient honey stored to winter the bees. If the frames, just as they are taken from the hives, containing bees, honey and comb, weigh thirty pounds in the aggregate, then there is enough honey. If not, good thick honey, or thick syrup, made by dissolving granulated sugar, should be fed at once, so that all cells may be capped over before the cold days of October check the labors of the hive. It is best that the honey be so abundant in the frames that we need not give the bees all the frames used in summer. It is better to use not more than seven or eight Gallup or American frames, and not more than five or six Langstroth frames. These are confined by division boards. It is best to carefully exclude pollen. Frames of pollen are set aside, to be returned when breeding is resumed the succeeding spring. The bees may easily change the position of the cluster in the cold days of winter, and it is desirable to cut small holes the size of a thimble through the combs, an inch or two above the center. Cover above the bees with sacks of dry saw-dust, which should be long enough to reach over the division boards and to the bottom of the hive. These protect the bees from the extremes of heat and cold, and promote healthfulness. Thus prepared, the bees to be wintered in chaff hives on their summer stands, will need no farther care until the succeeding April. If the bees are placed in the cellar, they need not be touched again until just before winter comes, when they are to be taken in.

THE BEE TENT.

As is well known, bees become irritable if handled after gathering ceases in the autumn. To take out extra combs, extract the uncapped honey, and prepare for winter as directed above, is often the most dreaded work of the season. The bees seem cross at the failure to obtain labor, and can not endure disturbance. By using a bee tent, made of wire gauze or mosquito netting, and large enough to set over the hive and operator, all this danger and trouble is avoided. The bees are apparently frightened into good behavior, and are as amiable as though in the midst of the honey harvest. The bee tent also prevents robbing, which is quite likely to be induced if we work with the bees when they are irritable from enforced idleness.

The early part of this season, in most sections of the country, has been cold, and more lately, exceedingly wet. From previous experience, we should not expect much honey, but, to our surprise, we are securing a good harvest. The white clover and basswood bloom have been very abundant, and the warm, moist interims between the abundant showers has seemed to furnish the bees a fine opportunity, which they have improved.

A False Alarm for the Vine Growers.

There seems to be a misapprehension in certain quarters of a peril to grape culture from the spread of prohibition views and legislation, in some of our Northern States. If prohibition gets into our State constitutions, and the dram shops are closed, we might as well destroy the vat and the wine press. Even in wine growing countries, a large part of the fruit of the vineyards is consumed in the use of the clusters, both in the fresh and in the dried state, and in various preparations of grape juice that never undergo fermentation. In our own country, one-half of our fifty millions of people probably have never had a feast of the better sort of grapes in all their lives. The grape market is fairly supplied only in our cities and in the very limited districts where vineyards abound. In the cities, the price of the finer sorts of grapes places them beyond the reach of the poor. The thrifty laboring classes have them as a treat on festive occasions. It is only upon the tables of the rich that grapes are a common dessert. Except in the flush of the market, they are more expensive than tropical fruits, and the consumption is much less. Grape juice is so scarce, that out of the State of California the adulteration of wines is almost universal in our country. Recipes for making wine of any brand, and of any age, without a drop of grape juice, are well known to some wine dealers. The prohibitionists, from Maine to California, and from the Lakes to the Gulf, want more vineyards and more grape juice, and welcome grape culture as well as all other fruit culture, as a powerful adjutant in their reform. When the villagers and the rural cultivators can literally sit under their own vine and fig tree, when the tempting clusters of the vine in the fresh state, are upon the poor man's table for six months in the year, when grape juice in its various preparations is among the family stores in every household, the enticements of the grog shop will have lost many of their charms.

Concerning Milk Testers.

Have we a good milk tester? The cream gauge is valueless, except to those who sell cream. The writer has tested the cream of many cows, and has found sixteen per cent by the gauge to prove equal to five and a half per cent of fat, more or less. This is equal to about six and one-third per cent of butter, which is a pound of butter to less than eight quarts of milk. At the same time, and under the same circumstances, other milk indicated by the cream gauge twenty, twenty-five, thirty-five, and even forty-five per cent of cream, and this milk so rich in cream, in actual butter production or fat content, often falls below five and a half per cent; and the highest fat yield, namely, six and a half per cent, was found in the case of milk indicating a little over thirty per cent of cream by the gauge. This six and a half per cent of fat indicates about seven and a half per cent of butter, or a pound of butter to six and a half quarts of milk; but this proportion is often exceeded.

The lactometer (hydrometer for milk) is of little or no practical value. It indicates the specific gravity of milk, that is, the relative difference in weight between milk and water. In water, the lactometer should float at zero—0. In pure average milk, it should float at one hundred; but pure milk varies immensely, say from ninety to one hundred and ten. Good skimmed milk will stand at one hundred and ten, more or less. Cream is a little heavier than water, but it is always mixed with milk when liquid enough to be tested by the lactometer. This much is clear: the withdrawal of cream increases the weight of the milk; the addition of water decreases the weight of the milk; and the withdrawal of some cream, and the addition of some water, may leave the milk poorer, but of the same specific gravity that it was at the beginning, and this the lactometer will indicate.

The best instrument for testing the value of milk hitherto invented, is the so-called Lactoscope of Prof. Feser. This shows, with considerable accuracy, the percentage of fat. Butter contains about eighty-five per cent of fat. Cream, such as rises in a cream gauge, about twenty-two to twenty-five per cent, which is equivalent to, perhaps, thirty per cent of butter.

Fat being the most valuable constituent of milk (whether in the form of cream or butter, or as an ingredient of cheese, or as giving flavor and money value to milk when sold as such), forms a safe gauge as to the purity and value of milk, whether tested at the creamery as received from the farmer, or in the city, or family, where it is used as food.

The action of this instrument was explained in the *American Agriculturist* in January, 1881. It depends upon the fact that the opacity of milk is chiefly caused by the globules of cream. So that when water is added to milk until we can see through a certain portion of it, we are able to do so because we separate the cream globules to that extent, that light can pass through between them with a certain degree of clearness. Now, if we measure the amount of water added, we have quite an accurate gauge for comparing different samples of milk. These instruments are not made in this country, so far as the public is informed, and but few have been imported. Yet there seems to be no reason why they should not meet with ready sale.

Cultivating the Black Walnut.

The demand for Black Walnut timber has so increased of late years, not only for home use, but for export, that the trees are rapidly disappearing. The high price of the wood, which will increase, rather than diminish, now allows it to be brought from great distances, and the natural growth is disappearing wherever there are means of transportation. It is not surprising that the attention of many is turned to the cultivation of Black Walnut, and we receive letters from widely separated localities, inquiring as to the probable profits of such plantations, and asking for directions for establishing them. As to the first point: there can be no doubt that, by the time plantings made now, afford timber of proper size, the price will have reached a point which will afford handsome returns. Even at the present price, land-owners in Great Britain are contemplating making plantations of the trees. Several inquire if the tree will succeed in their locality, and these inquiries come from Mississippi, New York, and other States. The Black Walnut is remarkable for its wide range, it being found in Florida, Louisiana, and Texas, at the South, all the way to the New England and other Northern States, attaining its greatest development in the fertile soils of the Valley of the Mississippi. The experience of the few who have made plantations of the tree, shows that in its early growth it needs the protection of other trees or "nurse trees," and that it must have cultivation to prevent the encroachment of grass. The tree does not transplant readily, and like others with a strong tap-root, succeeds better if the seed is planted where the tree is to remain. As with other timber trees, the value of which consists in having a tall clear trunk, this must be planted thickly, to prevent the growth of heavy side branches, and thinned out as the trees become crowded. The land is marked out in rows four feet apart, and the nuts planted eight feet apart in every other row, the intermediate rows being devoted to potatoes or corn. This cultivation in the alternate rows, is continued for two years, when the spaces between the rows of walnuts are planted with nurse trees. The Silver Maple, the European Larch, and even the White Willow, have been used. These are to be thinned out as they are found to encroach upon the walnuts, and are useful for poles, or may be employed as fuel. If any of the Walnut trees are disposed to branch low, they should be pruned while small, to secure a tall, clear trunk. When the trees crowd one another, each alternate one must be cut out; though not large enough for lumber, they will serve for various home uses. The seed is planted in spring. It is best preserved during the winter, by placing it in heaps of a few bushels, upon a dry spot, and covering with sods, upon which should be placed several inches of earth, as in covering pits of roots.

Indian Farmers in North Carolina.

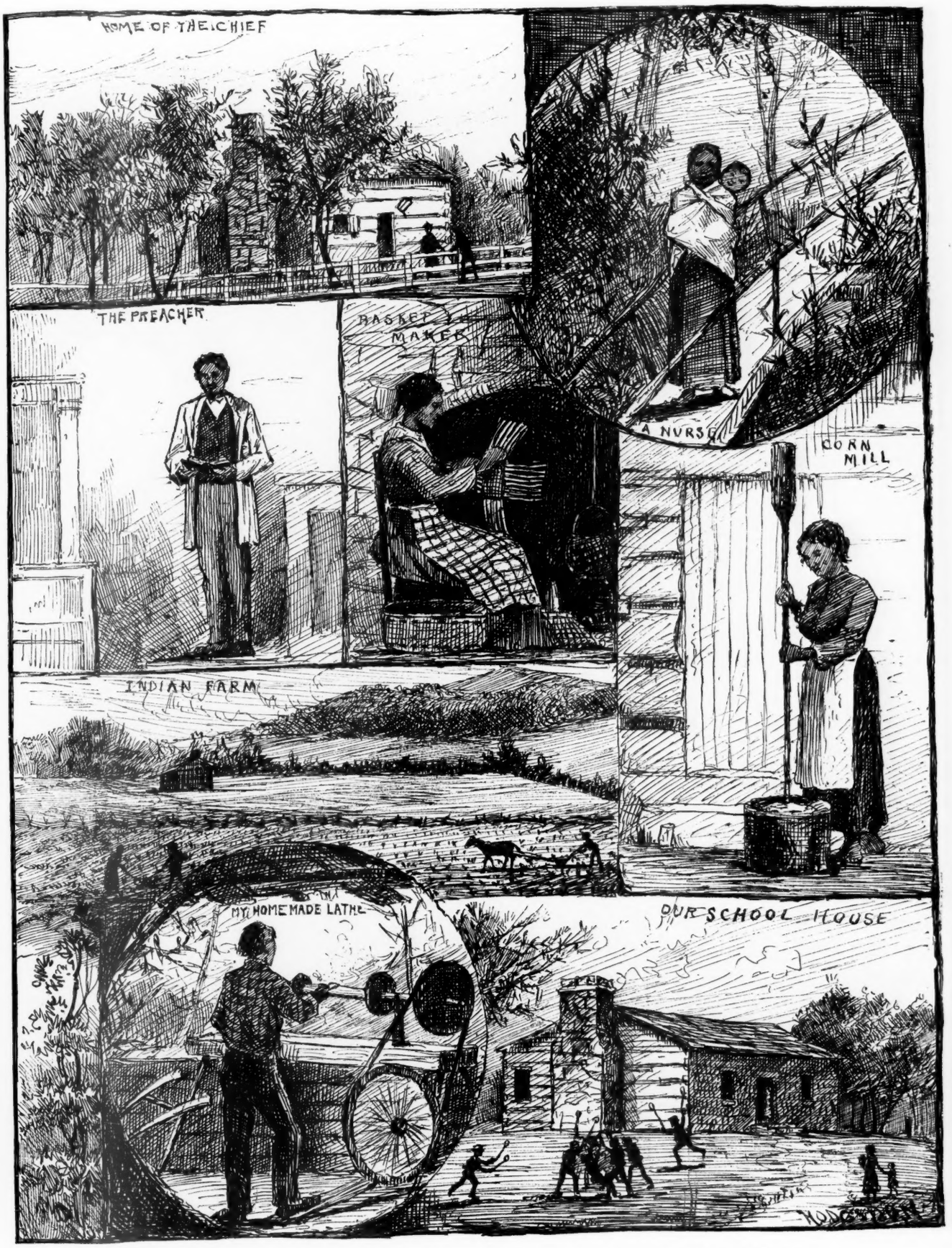
Our artist has been visiting the Indian farmers in Western North Carolina, and presents some illustrations on the opposite page. They are located in Swain County, fifty miles from any railroad, and comprise one thousand eight hundred men, women and children. When the Cherokees were removed to their new reservation, these Indians, that is, this remnant, absolutely refused to go, and the Government finally consented to their remaining. They are, most of them, farmers. Their "farms" run in size from one hundred acres down to ten. They own their land, live pretty well, and use the same implements as the whites. They raise corn, wheat, small fruits, and vegetables, making a specialty of sweet potatoes. They plow generally the year round, the winters are so mild. Their farms present a fair appearance, the fields being enclosed with the Virginia rail fence. They do their own horse-shoeing, and other work pertaining to the blacksmith shop. As a general thing they are moral, and do not use intoxicating drinks.

They are under the leadership of Chief Jarrett Smith, of whose house a very good sketch is given. Chief Smith is about forty years of age, straight as an arrow, and over six feet high. He has a wife and eight children. The children have been taught English, and two of them are able to teach in any school in the country. The people go to Chief Smith for advice, and obey him. While they observe the Legislative enactments of North Carolina, they make laws and regulations for themselves. They talk the Cherokee language. They have schools conducted by Quakers, of which the General Superintendent is a man named Brown. The children are taught English. Our artist gives an illustration of one of their school houses. It is built of logs, and partially covered with shingles. The Indians are now constructing a new building for educational purposes. School is kept up the year round. The children are paid a cent a day for attendance, and at Christmas they receive new clothing from the Quakers.

Suit Owl, the preacher of these Indian farmers, is six feet two inches, and about fifty years old. He preaches with great power, and his sermons are longer than white people would care to listen to. Frequently he will discourse for an hour and a half at a time, the listeners remaining until the sermon is finished; and not infrequently after the Rev. Mr. Owl has closed his discourse, another preacher takes the rostrum and delivers a second sermon, the people remaining and listening to the finish. The Indians are mainly Methodists and Baptists, and are good citizens generally.

They display a good deal of mechanical ingenuity; the artist gives an illustration of the convenient lathe, invented by one of their tribe, and it is generally used by them in the manufacture of their household goods, etc. Their corn mills, of which an illustration is given, are rude in the extreme. The mill entire, consists of a section of white oak, hollowed out, together with a double-ender pestle, very heavy at both ends. A man or woman, as the case may be, pounds the corn.

It is noteworthy, that wherever the half civilized tribes of Indians are settled, they compel the women to perform all the labor, but here the men do their share. The Indian women are very ingenious at making baskets of all kinds, though not so skillful in this line of labor as the Passamaquoddies of Maine. We publish an illustration of one of the Indian women basket makers. One of the interesting characteristics among the females is the Indian nurse. She wraps her child in a white sheet, and carries it about upon her back, instead of having the infant strapped closely to her back in papoose style. The settlement is about sixty miles from Ashville, N. C. A new rail road, when completed, will run within ten miles of here; then a visit to these Indian farmers will interest our readers.



RED MEN FARMERS IN NORTH CAROLINA.

Drawn and Engraved for the American Agriculturist.

Cure for Poultry Cholera.

There is only one positive cure for poultry cholera, a cure which can be depended upon every time, in all localities, and in every climate. The illustration herewith given will convey a clear idea of the cure, as well as its great effectiveness. Some breeders do not like to resort to such summary means, on account of the birds being pure-bred and expensive. In keeping the sick birds to "doctor" them, there is great danger of the well ones in the entire flock being affected. The cure we have suggested stops the progress of the disease, and is as simple as it is ancient. D. Z. E.

The Tree Onion, or Rocambole.

The onion assumes several forms quite different from the one generally cultivated from seed. The variety known as "Potato Onion," and in some localities in this country as "English Multiplier," never produces seed. It is propagated solely by offsets. A bulb of moderate size, if planted in the garden in spring, will, during the summer, produce a cluster of six to ten small ones. These, being kept during the winter, and planted the following spring, will each grow and form a large onion. This variety is largely cultivated in Virginia, to supply Northern markets with early onions. We have several native species of onion, though they are popularly called "Garlic," two of which bear at the top of the flower-stalk, instead of a cluster of flowers, followed by seed-pods, a bunch of minute bulbs, not much larger than a grain of wheat. These wild garlics, as they are called, are sometimes a great nuisance, as the plants occur in wheat fields, and the little bulbs, being ground up with the wheat, greatly injure the flour. This method of multiplication, the production of small bulbs in the place of seed-pods, occurs in some cultivated forms of onion. The variety known as "Tree," "Top" or "Egyptian" onion, and Rocambole, is of this sort. The flower-stalks, often very large and stout, are surmounted by a cluster of small bulbs; these bulblets, when planted out, form large bulbs; the large bulbs, when set, throw up stalks with a cluster of small bulbs, and thus generations alternate.

A number of persons have recently sent us for a name, an onion that has this habit of growth, but

THE CATAWISSA ONION.

which seems to be unlike the ordinary "Top Onion," in that the small bulbs are flat, rather than globular, and like well formed onions in miniature. The small bulbs, in the specimens sent us, are elongated, and the clusters throw up short branches which bear a few small bulbs at the top. In looking up the subject, we came across, in the elaborate French volume, "Plantes Potageres," an engraving of a variety of onion which corresponds well with the specimens in question, and which is here reproduced. The authors say that they received it from this country, some years ago, under the name of the "Catawissa Onion," a plant which seems to be a slight modification of the "Egyptian" or "Top Onion." The variety, "Catawissa Onion," is not mentioned by any of our writers, so far as we are aware. If ony of our readers know the "Catawissa Onion," we shall be glad to hear from them, and hope they will tell us whatever they may know of its history.

Fences for Poultry Yards.

The confinement of poultry necessarily requires a large outlay in fencing, especially if there are many subdivisions. Fortunately, unlike other stock, poultry exert but little force against such structures, their endeavors being in an upward direction. What is needed for the purpose is a cheap fence, of a kind that can be easily repaired, and yet effective for purposes of confinement. Plastering laths, though not as substantial as boards, answer well if the cost is to be considered, for such fences, if not durable, are easily repaired. A permanent lath fence can be built as shown in fig. 1. Place the posts eight feet apart and six inches from the ground nail a strip from post to post; one foot above this fasten another strip,

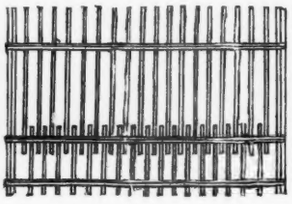


Fig. 1.

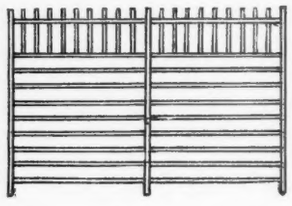


Fig. 2.

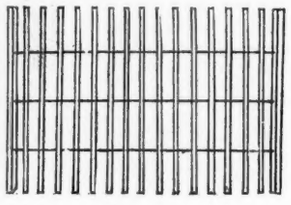


Fig. 3.

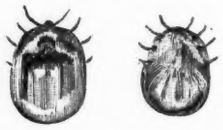
running in the same direction. To these two strips nail one-half laths (two feet), first driving the lower part of the laths two inches into the ground. Place a cross-strip three feet above the second one, and nail full length laths to the middle and upper strips. The cost is as follows for eight feet of fencing: one post (which is all that will be required for eight feet after the first panel), five cents; three cross-strips (two inches wide will suffice), twenty-four feet, at $6.00 per thousand feet, fifteen cents; fifty lath, twenty cents; total, forty cents, five cents per running foot, or one cent per square foot, as such a fence will be about five feet high. The advantages of this fence are, that the two strips near the bottom, being so close together, sustain pressure from dogs or outside intruders better than any other fence constructed of lath, and dispenses with a foot-wide board, so generally used. The estimates of cost of material are based from experience in one locality only, and may be less elsewhere.

The cheapest lath fence is made with the posts four feet apart, first sawing them in two lengthwise at a saw-mill, and nailing the lath directly to the posts without the use of strips. The two upper laths have short vertical pieces fastened to them with cleat nails, and present points to prevent fowls alighting on the fence. Such a fence (fig. 2) will cost, for four feet, one-half post, three cents; twenty laths, eight cents; and the nails, three cents, per running foot, six feet high, or one-half cent per square foot.

More expensive and durable fences may be made of pickets, bean-poles, or wire netting. For movable fences, tarred, netted rope is excellent, and can be procured from any dealer in poultry supplies. The price varies according to quality. Number six wire may also be used as strings, three strings being fastened to the posts and lath, interlaced by alternating them so as to have the upper and lower strings on one side of the lath, and the middle string on the other, as shown in fig. 3. Old barrel staves can also be used for fencing, by placing the posts close together, and nailing the staves to them. The staves may be used for the bottom course, as described in the first plan, or nailed crossways, with full-length lath projecting upwards from the staves or strips, if preferred.

Concerning Ticks.

A correspondent sends us some insects, from which the accompanying engravings are made, of about the real size. The left-hand figure shows the upper, and the other, the lower side. The creatures are evidently Ticks, now regarded as insects, belonging with the spiders, mites, etc. Indeed, ticks are really mites of a larger size. The proper insects have a distinct head, chest (thorax), and abdomen, which is made up of distinct rings. The ticks have no rings, and a head and body are all the visible parts. They usually have eight legs, terminated by claws adapted for holding on, and their mouth parts are constructed for the copious sucking of blood. In their early life, the ticks live upon plants, but when occasion offers, they attach themselves to vertebrate animals of all kinds, man included. The females are covered by a skin capable of great extension, and when one of them can attach itself to an animal, it at once begins to suck blood, and grows to many times its original size. Cattle, horses, sheep, dogs, and other quadrupeds are attacked by them, as are bats and several birds. Hunters and others, who are much in the woods, are sometimes annoyed by them. Ticks are abundant in some parts of the far West and Southwest, and attack not only cattle and their drivers, but deer and other wild animals. Ticks cause great annoyance to cattle, but they soon get so large, that they are readily seen and may easily be removed. When they attack the traveller, the itching they cause is so intense that the cause is soon sought and removed. If neglected, they have sometimes caused serious tumors, which had to be opened and the annoying creature extracted.

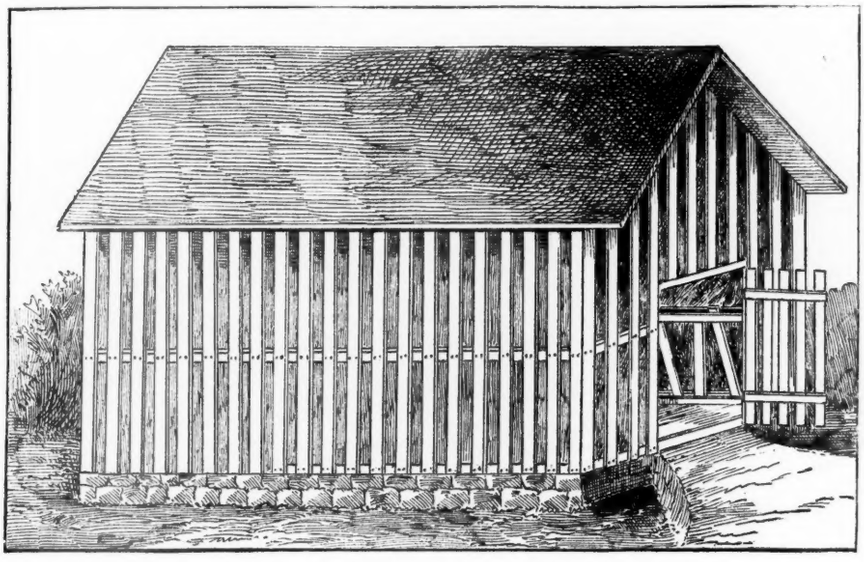


Beware of Bloat.

Bloating from over-feeding on clover is not uncommon among cattle in autumn. No experienced farmer would think of turning his stock into a stout piece of clover when the dew is on or when it is wet with rain; but bloat may come from some disorder of the digestive apparatus; or if the herbage be too rank, so that it cannot be properly disposed of, it will ferment in the paunch, producing gas, which, by its pressure, closes all way of escape, and, unless relief can be given, the animal will die. Every farmer should know how to "tap" the paunch, to let the gas escape. If no other means are at hand, insert a sharp pen-knife about half-way between the last rib and the hip, and eight inches below the level of the line of the back, the point tending somewhat downwards. This opening will allow the gas to pass off, and the wound will soon heal. A better instrument, and one that every stockman should have, is the trochar, made for this purpose. This consists of a sharp-pointed steel pin, about six inches long, having a tube (canula) which covers all but the point. When the pin is inserted, the tube follows it and remains, forming a means of exit for the gas in the paunch. Food should be light for a few days after such an operation. J. W. D.

A Desirable Milking Shed.

Recently, while in Steuben County, N. Y., we observed a peculiarly constructed building used as a milking shed during the warmer portions of the year. It is a common frame structure, thirty-five feet in length and eighteen feet wide, with posts eight feet high. The sides and ends are boarded up and down with eight-inch stuff, leaving a space three inches wide between the boards for ventilation, light, etc. A row of common stanchions are placed along each side. A door is made at one end, through which the cows enter. If grain is fed, it is placed in position before the cows are admitted. A small quantity of salt is kept on the floor, immediately in front of the stanchions, thus allowing the cows to obtain a supply twice each day. This manner of salting is an inducement for the cows to enter the building and take their accustomed places; it also tends to keep them quiet while milking. This arrangement, for cleanliness, ventilation, etc., is far superior to the common basement stables, and is a great improvement over the usual plan of milking in the open yard, where broken stools, spilled milk, and irritable tempers are the rule rather than the exception. No matter how stormy it may be without, this shed always secures a dry place, with comparative quiet. A greater supply of milk is obtained with such a shed. The floor of the stable portion may be of earth, covered with coarse gravel.



A MILKING SHED.—*Drawn and Engraved for the American Agriculturist.*

Shelter Belts of Trees.

In all of the prairie States, and in other localities where there are wide plains, over which the wind has full sweep, belts of trees are necessary for protection against the prevailing winds. The necessity for such shelter has been forced upon farmers and others by so many losses, that it is now generally admitted, and the only question at present is, as to the kind of belts to provide. Whatever may be said of the formal appearance of a country, cut up by rows of trees, the question of æsthetics must give way to that of utility. In many places it is between formal rows of trees, and no orchards, often bad field crops, and no shelter to cattle and sheep. Besides these, shelter is needed for the farm dwellings and barns, not only against winds but severe snows, and even roads can only be kept passable when lined by trees. In planting belts of timber, the first consideration is time; that which will form a shelter the soonest is the best. For rapidity of growth, the Poplars and Willows take precedence of all others. These are grown from cuttings, the size of which is not important. Different planters use them from eighteen inches to four or five feet long, and from one to four inches in diameter. The smaller ones are planted by means of a spade or crowbar, and the larger are driven into the soil. The larger cuttings of willow are sometimes set only six inches apart, but three feet apart is better.

Of Poplars, the Cottonwood has been in favor for high dry ground, though Mr. Judd writes from Nebraska that many Cottonwood trees in that State have been ruined by the Cottonwood-worm. It is desirable to procure cuttings from male trees only, as the female, when in fruit, scatters the cottony down of its seeds, and this for awhile is very annoying. Among Willows, the White Willow and its variety, the Golden Willow, are the most useful. In spite of the fact that the White Willow was over-praised several years ago, and cuttings of any kind of willow were sold under this name, at a high price, the tree is a valuable one, and allows a shelter to be made in a short time. These trees, the Poplar and Willow, will soon be large enough to allow other and more valuable kinds to be added to the shelter belt. The Ash-leaved Maple, often called Box-elder, is an excellent tree for this purpose. It grows rapidly, and if planted somewhat thickly at first, say ten feet apart, its thinnings, as soon as the trees encroach upon one another, will afford valuable fuel. A belt being once established, any other trees suited to the climate may be planted, and in time the willows and poplars, having answered their purpose, can be removed. The trees added to the belt should be in part evergreens, for the sake of the greater protection they afford in winter. Some planters prefer only native kinds, among which the White Pine and Red Cedar are the most prominent. The form of Red Cedar, common at the West, is so different in habit and rapidity of growth from that common on the sea-coast, as to appear like a different tree. Among exotic evergreens useful in belts, the Norway Spruce is one of the best. The European Larch and the Deciduous Cypress of our Southern States (where it will flourish), though not evergreens, are conifers of very great value for shelter belts.

Five Good Acres Free.

Riding along an interior highway in New York State, we stop to make the following suggestive notes: Here is a farmer with his men cutting an excellent crop of hay right in the road, that is, on the strips twenty-eight to thirty feet wide each side of the central wagon track. The grass is good for one and a half ton per acre. The "public" only need the wagon track, and the owner of the farm through which the highway runs, rightly claims that the use of the land, so far as not needed by the public, belongs to him. Cattle, horses, pigs, and other animals are not "free commoners" in the town. This farmer has prepared the land between and clear up to the fences, and keeps it as well cultivated and free from briars and weeds as the rest of the farm. The side ditches are hollowed out broad, and yield first-rate Timothy. Result: the road extends thus nearly three-quarters of a mile, say two-thirds, and is four rods wide; the wagon track about six feet wide, or say eight feet. A little figuring will show that every seven hundred feet, fifty-eight feet wide, gives a good acre, and three thousand five hundred feet (two-thirds of a mile) supplies five acres of good grass, from which, as we write, the farmer is cutting about seven and a half tons of first-class hay, from what very many others allow to run to waste!

Arbitration as a Means of Avoiding Litigation.

Mr. L. J. M. writes us: In your article in the June *American Agriculturist*, on "How to Avoid Litigation," you do not, among valuable suggestions, mention the method by arbitration. Would not this be a proper, and oftentimes very valuable, means of avoiding litigation, especially among farmers, whose differences in many cases do not involve many legal principles, but result from mistaken notions of facts? If I am correctly informed, it is perfectly lawful for persons to refer their disputes to one or more disinterested outsiders, and that the decision so arrived at becomes just as binding upon the parties as the judgment of a Court.

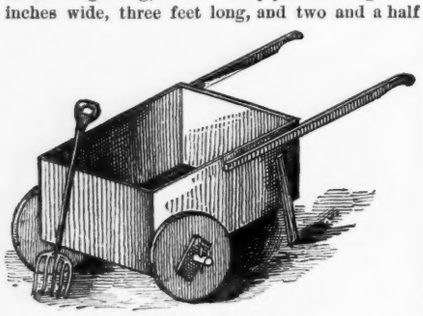
ANSWER.—It is perfectly proper and legal for persons who cannot settle their differences between themselves, to get arbitrators to do it for them. The law favors arbitration as a peaceable and inexpensive method of settling difficulties. In many of the States there are statutory provisions, by which a judgment of the Court may be rendered on the award or finding of arbitrators, concerning a matter duly submitted to them. It is almost always possible to take a case out of Court, and submit it to referees at any stage of its progress. In the absence of any statutory provisions, it is always lawful for parties to agree to submit their differences to arbitrators, and abide by their decision. The agreement to do so may be either oral or written, but the latter is the better way. The form is not essential, except that the meaning should be carefully expressed. It is customary, in addition to the agreement, for the parties to execute to each other an arbitration bond, conditioned on each party performing the award given by the arbitrators, whatever it may be. If the award is properly made, it then becomes binding on the parties. But it is not always easy to make an award that will hold, and this fact, so far as it extends, is an objection to the method. In the first place, the award must conform to the terms of the submission, as contained in the agreement to refer. The arbitrator's authority comes entirely from the submission. If they exceed it, their whole work fails. The precise question submitted to them, and nothing else, should be answered. The award must not affect strangers in any way. It must be certain; that is, so expressed that there can be no reasonable doubt as to what is meant. It must be possible, otherwise it will be senseless and of no effect. It must be reasonable and final, and made in perfect and entire good faith, and upon full and impartial hearing. If deficient in any of these requisites, it will not bind the parties. Either party may revoke his submission at any time before the award is made. The death of either party revokes the submission, as also does the death of one or more of the arbitrators. When the award is made, it is common for the referees to deliver it to the prevailing party, on payment by him of the fees of arbitration. A better method is to seal and address a copy to each of the parties.

It will be seen that arbitration is, after all, only a kind of litigation, and that if it were counted among the means of avoiding litigation, it would only be classing the end to be avoided among the methods of avoiding it. Still it is well worth considering by farmers, who find themselves in dispute about some simple question of fact, as, for instance, the amount of damage which A's breechy

cattle have done to B's corn, or as to what was the value of A's sheep which were killed by B's bad dog. Such questions can generally be quickly, cheaply, and justly settled by one or more fair-minded neighbors, and the expense, delay, and aggravation of a suit in Court may thus be avoided.

A Cheap Ensilage Cart.

The adoption by many farmers of the silo method of preserving fodder, has made it necessary to change the manner of feeding live stock. When the ensilage is removed twenty feet or more from the silo to the feeding rack, it is best to have some means of conveying it in quantities of from one to two hundred pounds at a time. This can be done cheaply and quickly by a small hand-cart, one of which any farmer having the tools can make in half a day. A good form of ensilage cart is shown in the engraving, and is simply a box eighteen inches wide, three feet long, and two and a half



AN ENSILAGE CART.

feet in hight. A wooden axle, of some tough fibre, is nailed to the bottom, ten inches from the end, and wheels from one to two feet in diameter are placed upon the axle. Suitable wheels can be made from planks, with cleats nailed on to keep them from splitting. Handles and legs are attached as shown in the engraving. The axle being near the center, throws nearly the whole weight of the load upon it while being moved. It will be found easier to handle than a barrow, and not so liable to upset when unequally loaded. It is a cheap arrangement, and may be used for various other purposes as well as for moving ensilage.

How I Secured Chickens.

Some years ago I paid a visit to the country on the 22d of August, and was surprised to find that, up to that time, there were no little chickens on the farm, which was a large one. I was told that some animals had destroyed all the eggs and young chickens, and that it was useless to try to raise any. I proposed to make a secure nest, and see what might yet be done, but was met by several objections: first, it was too late; then there were no eggs; and finally, there was no hen wanting to sit. I sent to a neighbor for eggs, and found a hen sitting in a dark entry upon nothing. I planted a post in the back-yard, nailed an inverted wash-basin on the top of it, and then a sitting-box (see engraving) over that. I made a nest of fine hay, put in the eggs, placed corn and water on the shelf at *c*, opposite the vertical opening at *d*, put in the hen,

A SAFE HEN'S NEST.

raised the back door at *a*, and fastened it by a nail through a gimlet hole at *b*. I soon found the head of the hen at *d*, and she appeared contented with the arrangements for her comfort. As this was an experiment, I did not open the back door for three days. The hen came out when it suited her, and in time hatched twelve chickens, all of which grew to maturity, and were shown to me the following spring. The box became a favorite retreat for laying and sitting hens, and was in use until it fell to pieces from age and decay, some years afterward. Where there are rats, minks, or skunks, this form of box is very easily made; it should stand about three feet from the ground. I found in later trials that a sitting hen did not require locking in for more than one day, to reconcile her to the new nest. The roof is made long at *e*, as I found this necessary to secure the food against thieving chickens, which mounted the roof to steal. N. P. H.

Shall We Plant Orchards in Autumn?

Each year, at this season, the question comes up as to the desirability of planting trees in fall, in preference to spring. As with many other questions, no invariable rule, that will serve for all portions of our wide and diversified country, can be given. In some instances, spring planting is essential to success, and in others fall planting is greatly preferable. To decide between the two seasons, we must take into consideration the climate, the character of the soil, and the kind of trees. Fruit growers are agreed that trees should be taken up from the nursery in autumn, as the condition of the soil allows them to be dug with less injury to their roots, and the stock at the nurseries not being reduced, a full assortment of varieties can be supplied, and there is less chance of getting the "culls" after the best trees have been sold. When a tree in the nursery makes its full growth, the new wood becomes firm and thoroughly ripened; each stem and twig is terminated by a bud, and in the base of each leaf is a smaller bud, more or less fully developed. When these buds, as well as the stems upon which they are placed, have made their full growth and are ripe, the leaves have done their work; their appearance, and the manner in which they hang upon the tree, show that they are no longer active. The leaves may remain for weeks, often until frost comes, unless a severe storm causes them to fall. If the leaves be tried, it will be found that they as readily part from the stem as does a ripe fruit. Their work being finished, they have made preparations to fall, a line of separation between the leaf and the stem has been provided, and when given a slight pull, the leaf separates at this line, leaving a clean scar. Much has been said about stripping the leaves from nursery trees, as if it were a fraud upon the buyer. If intelligently done, when the leaves are ripe, no harm can result, and it ought always to be done when trees are taken up in autumn, if only for their safety in the packages. The argument against procuring trees from the nursery at this time, because the leaves must be stripped, is not worth considering.

In those northern localities where the season of autumn is brief, planting at that time is not advisable; but in a large part of the country, after the first few frosts, there is a long succession of the most delightful days, and winter approaches slowly. In such localities, fruit trees may be planted in the fall with decided benefit. A tree is not like a stake stuck in the ground, to remain unchanged. The tree, though at rest, is still alive. Its buds and bark keep up a certain activity. It is well known that if apparently dormant cuttings of the grape or currant be set out in the fall, they will form a callus at the lower end, and the currant, especially, will even produce roots; all this takes place without the presence of a leaf or any apparent life in the cutting. When a tree is planted in the warm soil in autumn, its roots begin to heal where they have been wounded, and new fibres push out and help fix the roots in the soil. A certain work of preparation which the roots must do hurriedly in the spring, if planted at that time, is much better done in autumn, and when the growing season begins, the tree is prepared for it. Wet soils are not favorable for autumn planting, nor indeed for any other. If the earth will be saturated with water in winter, it is no place for the roots of trees. Heel-in the trees, and by laying drains, prepare the land for setting them next spring. In planting trees at this season, they should have the preparation we have advised for spring, i. e., to smoothly cut all broken roots, and to diminish the tops one-third to one-half; moreover, a sharp mound of earth should be made around the base of each tree, a foot or eighteen inches high, both to steady it against heavy winds, and to keep off the mice. The stone fruits, peaches, cherries, etc., are regarded as less suited to fall planting than apples, pears, etc.; but in the peach districts of Delaware and Maryland, extensive plantings are made in autumn. The planting of deciduous ornamental trees is subject to the same conditions as that of fruit trees, and the same may be said of currants and other fruit-bearing shrubs.

A Fruit Picker.

Large apples, finely colored, and without spot, bruise, or blemish, always command a high price in market. As these apples are frequently found on the extreme ends of the highest branches of the trees, it is a difficult matter to secure them without bruising. They are beyond the reach of a person on the tree or on a step-ladder, and to shake them down is to ruin them. Most fruit pickers are arranged to pull the fruit off the tree. Pull one apple off, and down come five or six more of the best on the limb. To obviate this, we invented

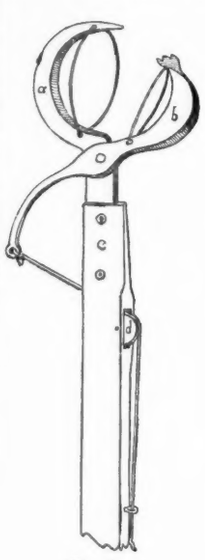


Fig. 1.

Fig. 2.

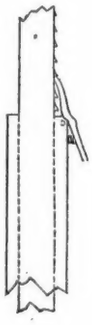


Fig. 3.

the picker shown in the engravings. Figure 1 is the picker. The pieces, *a* and *b*, are iron, shaped as seen in the cut. They work on a rivet, and are fastened securely to the end of the pole, *c*. Holes are punched through *a* and *b*, and stiff wires inserted, forming a cage for the fruit. The toothed end of piece *b* is sharp, and slides over the end of *a*, which may be sharp or not. A small hole is bored through the pole, and a notch cut in the front edge for a small pulley, *d*. A strong cord is attached to the lower end of *b*, and passes through the hole over the pulley, and down the pole through screw-eyes placed a short distance apart. Figure 2 is a section of the lower end of the pole. Eighteen inches from the end, the pole is squared for about fifteen inches. Over this squared portion is fitted a sliding-box handle. A thumb-stop is fastened to the upper end, as shown in fig. 3. The thumb end is held up by a small spring, which presses the upper end into notches in an iron rachet bar fitted into the pole. A screw-eye is inserted in the upper end, and a cord attached. The pole may be of any desired length.

To pick apples, grasp the pole at the lower end with one hand, and by the sliding-box handle with the other. Press the thumb-piece and slide it up, and the weight of piece *b* opens the jaws of the

picker. When the apple is in the cage, draw the slide down until the points of the picker meet on the apple stem. The thumb-stop will hold it secure. Turn the pole slowly without pulling, pushing, or shaking the limb, and the apple will come off easily. The cage of the picker should be large enough to contain the largest apple, and enough wires may be attached to hold the smallest. The jaws should not be over one-eighth of an inch thick, flattened on the inside, to prevent bruising the ripe fruit. They may be wrapped with cloth, if thought necessary. Q.

Make the Meadows Permanent.

We cannot expect meadows, as they are usually managed, to be permanent. Grass, this year, in old meadows, is much lighter and thinner than last year. The past season has been one of extreme dryness in some sections of the country, there being no rain for two or three weeks during the time of getting in the hay. The removal of the grass during this dry period, allowed the hot sun to fall directly upon the roots, weakening and killing a large amount of them. Cutting with mowing machines, as it is generally done, leaves the stubble so short that it affords scarcely any protection to the roots. Under these circumstances, meadows will run out; and when there is no growth of aftermath, there will be a loss in the future production of the meadow. If the winter is open, and the surface of the ground exposed, the damage is increased. A good aftermath is an indication of vigor in the grass roots, and essential to the protection of the meadow in winter and early spring. How shall this be secured? A farmer who succeeded in preserving his meadows better than his neighbors, had a rule never to cut them in a dry time, and once in three years to let the grass stand until the seed ripened, so that it would shell out and renew the meadow. These results may be obtained by other methods, and the hay secured before it is over-ripe. The cutting-bar of the machine should be set higher, so as to leave longer stubble, which will help to keep the plants from drying up. Plaster, liberally sown over the surface, will attract moisture and perhaps ammonia, and give the grass a good start. With a higher stubble, and this inexpensive auxiliary, a growth of aftermath may be secured; and if this is left to rot on the ground, an annual protection and enriching may be obtained, which will help to make the grass permanent. Pasturing meadows is frequently a damage. If seed is sown in August or September, and covered as much as possible with a harrow, it will help to renew the crop, although not so well as to sow the seed, and sprinkle it over with muck or finely rotted manure. It will pay, when a field is well fitted for a meadow, to make it as permanent as possible. C.

Successful Celery Management.

Certain plants grow most rapidly during September. The warm days are followed by cool nights, which bring copious dews; these refresh and invigorate the plants to such a marked degree, that it is not difficult to believe that they act as a fertilizer, bringing down the ammonia of the atmosphere for the use of the plants. Among the crops most strikingly benefited by the alternation of warm days and dewy nights, is celery. Having recovered from the effects of transplanting, it is now fairly established; its rapid growth should be encouraged by the frequent use of the hoe, without reference to the presence of weeds. In the old plan of planting celery at the bottom of a trench, earth was added every week or two. Some, in adopting the improved method of planting upon the surface, think that it is necessary to earth up the plants gradually. This is a mistake, and the treatment will result in poor, hollow stalks. In the present method, the plant should first make its full growth, and then be blanched by excluding the light, which is the object of earthing up. If the earthing is gradual, the stalks will continue to grow at the tops, but largely at the expense of the lower part, which will be drawn upon to continue the growth, and instead of solid, crisp, and tender celery, it will be tough, hollow, and stringy. The main portion of the crop should not be blanched until its growth is complete, and severe frosts are at hand. If celery is needed for early use or sale, then a share of the crop, but only as much as can be disposed of, is to be earthed up. The first step in doing this is to bring the stalks of each plant into an upright position, grasping them with one hand, while with the other sufficient soil, previously made loose by hoeing, is drawn towards the plant and pressed against it, to keep the stalks erect. This operation, called "handling" by the gardeners, is followed in about a week by earthing up by use of the spade, banking the earth against the plants to about half their hight. A week later the earthing is carried as high as the tops of the plants. Celery thus treated will blanch in about ten days, and should be used as soon as ready. The bulk of the crop, for winter use, is to be "handled" in the same manner, but not until next month, when all the plants should be brought into shape, the stems being erect, by this treatment.

A Disbeliever in Hedges.

Western farmers are apparently beginning to realize that Osage Orange hedges are not altogether an unmixed blessing, for I observe they are not now planting them around, across, and through their farms as freely as a few years ago. They were then styled the "poor man's fence," and while their praises were sounded far and near, thousands of miles were set out. A great many farms were divided into ten-acre lots, and some even smaller. Many of these cross-hedges have lately been cut out, and there are indications that more will soon follow. Between my farm and that of a neighbor stands a hedge that was planted thirteen years ago. The greater part of it was allowed to grow at will, and a cross section of it, roots and

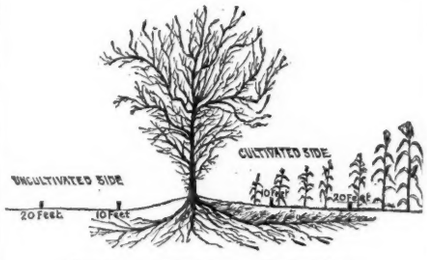


Fig. 1.—UNTRIMMED HEDGE PLANT.

all, is shown in fig. 1. A small portion has been kept closely trimmed down to the hight of four feet, and a cross section of this is shown in fig. 2.

The land on my side of the hedge has been constantly cultivated and frequently manured. On the opposite side, my neighbor has a strip of grass land twenty feet wide, which he uses as a road. The roots of the hedge, and their effect upon my corn crop last year, are plainly shown in figs. 1 and

Fig. 2.—TRIMMED HEDGE PLANT.

2. Investigation showed that, on my side, each large root was fed by thousands of fine fibrous roots, which literally filled the ground, reaching both up and down, and robbing the soil of all the fertility and moisture within their reach. The former owner of my land made a weak attempt to prevent this piracy on the part of the hedge by digging a ditch two feet deep alongside of it. The effect of this ditch is shown in fig. 3. The evil effects of the hedge roots were most noticeable during a dry season, and always very apparent.

I suggested to my neighbor that it would please me greatly if he would grant me permission to reduce the whole hedge to a uniform hight of four

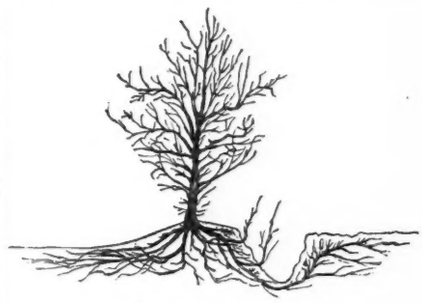


Fig. 3.—HEDGE AND DITCH.

and a half or five feet. He objected on the ground that it afforded a fine windbreak for his pastures, yards, etc. Not wishing to enter into doubtful and expensive litigation with him, I had a ditch four feet deep and three feet wide dug the entire length of the hedge, two feet from it. It was a difficult and laborious job, but millions of the robber roots were severed, and the effect on both my land and the hedge was significant. About one-fourth of the hedge died. The remainder seems to be afflicted with the "yellows," while my crop this year looks as well close by the ditch as it does fifty feet away. When it is fully understood that a healthy, trimmed Osage Orange hedge requires land at least a rod in width upon which to grow, and that an untrimmed hedge requires fully two rods, I think a less number of cross hedges will be planted, and many more that now cumber the land will be grubbed out. P.

Preserving Forests against Fires.

Wherever it is possible leave the trees standing in blocks. Between these blocks the land should be kept under cultivation by the plow, or pastured so closely as to prevent any grass from growing up and standing in high tufts, for such would enable the fire to run over the ground, and thus carry it from one block to another, to the destruction of their trees. The size of these blocks ought to be as small as possible; as a general rule, we would limit them to five to twenty acres, and never let one exceed fifty acres. The cultivated division between these should vary in breadth according to circumstances, to be decided upon by a Government surveyor. As western winds are more generally prevalent during a dry time, when forests are most liable to be fired, the space ought to be broader between the eastern and western lines than the southern and northern. As wood and timber are cut, they should be hauled out from the woods and piled on or near the center of these spaces, and then, in case of fire, these at least would be saved from destruction.

Before commencing lumbering in the forests, or clearing for cultivation, the tract of country subject to this ought to be surveyed, and the spaces lined out to be first cut over, and all the brush cleaned up and burned before dry weather sets in. In some instances, these spaces could be left safely to grow up a new forest, but it would be better to put them under cultivation or into grass. If suitable blocks of forest were left standing, the thinnings of these would go far to supply the country with a sufficiency of lumber. As soon as a tree here had attained a proper age and size, it might be cut down, hauled out, and turned into lumber, as is done in many of the European forests. This gives the younger trees near where they stood a chance for a better and more rapid growth, thus keeping the blocks up for a never failing supply of wood and timber for the annual wants of the country.

Forests are set on fire by so many various ways, that neither guards nor laws, however strict, can

entirely prevent them. These are mainly done by hunters, pic-nic parties, brush burning, sparks from locomotives, or depraved people, delighting in the wanton destruction of valuable property belonging to others. The preservation of sufficient areas of forest where now standing, and the planting of others where needed, are important considerations, not only for our own United States, but for the whole continent of North and South America. This should now be made both a State and National subject, by passing such laws, and strictly enforcing them, as shall ensure their being properly cared for; and when we have done this for our own region of the Western hemisphere, let us use our influence to have the same thing accomplished, where not already done, in all other portions of the American continent.

Fire and lumbermen are annually making a shocking waste of our forests. It is fully proved now, that where reservations have been made of blocks from them by farmers, on the first settlement of their lands, the thinnings from these blocks for fire-wood, fencing, and lumber, have been more profitable to them than the crops gathered from the land entirely cleared up for cultivation; and the wooded portions of the former now are worth and would readily sell for two to five times the price per acre of the latter. A.

The Large-Flowered Plantain Lily.

We have little sympathy, as our readers are aware, with those who sneer at botanical names, but at the same time we are desirous that plants should have, when the botanical term is not a convenient or a popular one, a name that will be generally accepted. Very few object to *Geranium* or *Magnolia*, yet they are purely botanical names, but are easily adopted into our language. It is quite different with *Eschscholtzia* and *Zauchsneria*, names that have been given to Californian plants, which have never become popular on account of their formidable titles. We advocate the use of botanical names in their place, but when these happen to be of a kind which will not be readily accepted by people in general as common names, let us find others. The plant here engraved will illustrate our meaning. Its botanical name is *Funkia grandiflora*. The genus was named after a German botanist by the name of "Funk." However excellent a botanist Mr. Funk may have been, or however estimable as a citizen, the name *Funkia*, in this country, at least, can never be popular. The plants have been called "Day-lilies," but, unfortunately, some very different plants are also called by that name. Mr. Robinson, editor of the "Garden" (England), not long ago called for a popular name for the *Funkias*, and, if we mistake not, offered a premium for one. At all events, "Plantain Lily" was suggested as a popular name for *Funkia*, as the leaves have a general resemblance to those of the common weed known as Plantain, and it was accepted as a name likely to be used.

THE PLANTAIN LILY.

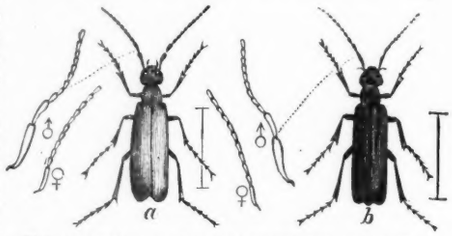
We are glad that so appropriate a name has been given, as the plants are among those likely to become popular. A few years ago, in going through the streets of a New England town, we noticed that almost every front door-yard had a clump of the plant here illustrated. This indicated that the plant had qualities which made it desirable, and that it was easily propagated or divided. There is some confusion among the species of *Funkia*, but the one here figured will answer for the general appearance of all. In this the broad, distinctly veined leaves are of themselves ornamental; the flower stems, about eighteen inches high, produce large funnel-shaped, pure white flowers, which have the odor of orange blossoms. The flowers appear in July, and continue to be produced in succession until the autumn months. The "Blue Plantain Lily," called *Funkia ovata*, and *F. cærulea*, has violet-blue flowers, which appear somewhat earlier than in the foregoing. There is one with beautifully variegated foliage, the leaves being edged with a broad band of white, which is known by the garden name of *F. albo-marginata*. There are some others, and all have qualities which must make them popular flowers, now that they have so popular a name as Plantain Lily.

Storing for Winter.

Those who have gardens should thus early consider the best methods of storing the crops that are to be kept through the winter. The old style farm-houses, where the cellar floor was of ordinary earth, in which cabbages were planted out in rows, and vegetables stored in bins, are now happily rare. Stores of vegetables or of fruit have a direct effect upon the air of the cellar, and consequently upon that of the rooms above, and, as a matter of health, should not be tolerated in any considerable quantities. The method of storing vegetables practised by the market-gardeners is applicable everywhere; and while it preserves the roots, etc., in excellent condition, it will relieve the farm house of one source of discomfort, if not of disease. Large masses of our products, whether those we term vegetables, such as roots, cabbages, etc., or those commonly called fruits, as apples, pears, etc., are not dead, inert matter, but are constantly acting upon the air which surrounds them. As a rule, they take up oxygen from the air, and give off carbonic acid gas, a poison to animal life. No very large mass of vegetables or fruits should be stored in the cellar of the dwelling house for the winter. So far as roots are concerned, as well as cabbages and celery, they are much better stored outside. Of course, on farms where roots are largely cultivated, proper cellars are provided for storing them; but where moderate quantities of beets, carrots, parsnips, and other roots are to be preserved, to be taken out as needed for use, or for sale, the method of storing in trenches is to be commended. The place selected for the trench must be one in which water will not settle, or provision must be made for complete drainage; otherwise the method will fail. A long pit, or trench, is dug, six feet wide and three or four feet deep. The roots are then stacked up in sections about two feet long, and as high as the top of the trench. One stack, or section of roots, being made, another is begun about half a foot from it, and the space between the two filled in with soil. The trench, when filled, will be two feet of roots, six inches of soil, and so on for its whole length. The roots are to be covered with soil, and before freezing weather comes on, enough earth should be put on, two feet, more or less, and so rounded as to shed the water from rains and to exclude frosts. This method is in reality a series of small pits, from which the contents of one may be removed without disturbing the next. For small quantities, in family gardens, barrels are sometimes sunk in the ground, the roots packed in them, with a layer of leaves above, and a cover over the whole. But for family use, a small quantity of vegetables in the cellar need not be objectionable; they may be placed in boxes or barrels, and covered with earth, and thus preserved in a readily accessible condition. Celery may be preserved in boxes, not over nine inches wide, and of any convenient length. Soil is placed in the bottom; the edges of the box should be nearly as high as the plants.

Blister-Beetles in the Garden.

Mr. F. J. Priest, Grant Co., Dakota, sends us specimens of a beetle which is destroying his potato vines. He writes that they are very abundant, and that he caught a panful in a short time. They



THE ASH-COLORED AND BLACK BLISTER BEETLES.

are eating the beets, peas, and cabbages; in short, every green thing, but prefer the potato vines. This pest is the Black-rat Blister-beetle (*Lytta murina*), shown at *b* in the engraving, and has been known to appear in swarms upon the potato and other plants, especially in the more Northern States. There is a member of the same genus (*L. cinerea*), known as the Ash-gray Blister-beetle, which also attacks potato vines, the honey locust, and various sorts of the English bean. This beetle is shown at *a*. The uniform ash color is due to minute gray scales or short hairs that cover the surface of the beetle. This Blister-beetle has been known to swarm on apple trees, destroying the foliage and gnawing into the fruit. The Striped Blister-beetle (*Lytta vittata*) is a more Southern species, but some years it has been abundant on the potato vines in Central and Southern Illinois. The most successful method of destroying these Blister-beetles is to place straw between the potato rows and set fire to it. The straw burns very quickly, and does not injure the potato vines.

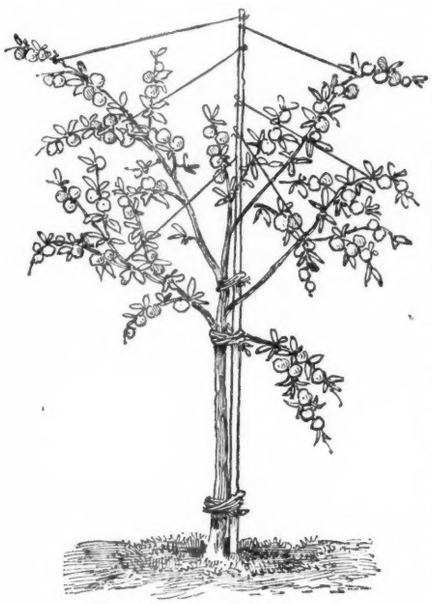
Pickle Farming.

Some farmers find the growing of cucumbers profitable; others, hearing that they are a paying crop, plant more or less land with cucumbers without a definite idea as to what they will do with the product. Each year we have inquiries as to what shall be done with an expected crop of cucumbers. It is not often that the same person can both produce the raw material and manufacture it into a salable article. It will be found that those farmers who have made money from cucumbers, have contracted beforehand with a pickle factory to take their crop at a stated price. It is not advisable, as a general thing, for farmers beyond the reach of pickle factories to grow cucumbers. The smaller the cucumbers, the higher the price by the thousand. For small ones, the picking should be made every day, or at least every other day, and they should be delivered at the factory every few days, or before they become discolored. Those who have planted cucumbers in localities where they can not readily dispose of them, must either salt the product themselves, or lose the crop. In the factories the cucumbers are salted in large vats, but on the small scale, this must be done in barrels. Whiskey or alcohol barrels are the best, and where it requires the pickings of several days to fill a barrel, a wooden follower must be provided. Take out one head of the barrel, place in the cucumbers, sprinkling salt among them, place on the follower, with a heavy stone upon it, and add sufficient water to cover the cucumbers. Add each day's pickings with more salt, and use more water, if needed, until the barrel is full, when it is to be headed up. Half a bushel of the best dairy salt is needed to each barrel, and if this quantity has not been used as the cucumbers were laid in, add the remainder before heading up. Two points must be observed: in gathering the cucumbers, cut them so as to leave the stem attached, and use only salt of known purity. In putting down the cucumbers, count them, as they are sold by the thousand. Salted in this manner, and properly

headed up, with tight bungs, cucumbers will keep a long time, but they will be ready for the pickle maker, that is, will be salted through, in about thirty days. The smaller the cucumbers, the greater the number that a barrel will hold. Do not mix large and small in the same barrel, but have the size uniform all through. Pickled in this manner, cucumbers will keep and can be transported; and if no sale is to be found near home, they can be sent to factories at a long distance.

Overladen Fruit Trees.

It is a rule in fruit culture, that a tree should not carry any greater weight of fruit than its branches can sustain. Still, with some rapidly swelling fruits, peaches and plums especially, however thoroughly thinning may have been done, it is often found, as the fruit ripens, that the weight is too great, and the branches, unless they are supported, will break down with the load of fruit. The usual method of supporting overladen fruit trees is to place long stakes, with a fork at the



TYING UP A FRUIT TREE.

top, beneath them. A much better and more simple method of effecting the purpose, is suggested by Dr. J. H. Mease, of Lebanon, Pa., who sends us a sketch, from which the engraving is made. Instead of using several stakes, one to each principal branch, he places a single strong pole against the trunk of the tree. The lower end of the pole, if desired, may be sunk a few inches in the soil, for additional support, but usually it will be sufficient to secure it to the trunk by means of straw bands, or other ties that will not bruise the bark. The pole being secured, the drooping branches are relieved by means of ties made fast to it, as shown in the engraving. Dr. M. states that this method of tying up the branches of overloaded trees is especially useful in storms, the support being central, and more natural than where several props are used.

Regarding Beans.

We do not "live up to our privileges" in the matter of beans. Custom has established the arrangement that certain varieties of beans, as the "Early Valentine," "Golden Wax," and others, are good for "snaps" or "string beans"; that the "London Horticultural," the "Lima," and others are good when shelled green; and that the "Blue Rod," "Medium," "Navy," and several others are proper for winter, or as ripe beans. All of this is very well, so far as it goes. But it restricts the usefulness of some beans. Let any one who has an over-crop of the London Horticultural, more than he needs for seed, make use of them as he would the usual winter beans, whether for boiling or baking, with or without pork, and he will have an enlarged idea of the excellence of beans. As the best of all green beans are the Lima, so are they the best of all ripe beans. In localities where the season allows of their ripening, they should be collected. If frost threatens, pull up the poles, with the vines attached, place them under cover, and allow what will, to ripen in this manner, and when the pods are dry, shell the beans. If any one likes the Yankee dish of "pork and beans," let him try the Limas, treated in the same manner as the ordinary white bean, and he will have a new experience as to the utility and excellence of this bean. The ripe Lima beans, soaked or parboiled until quite tender, and then fried in butter, make a pleasing variety in winter.

Diverting the Rose-Bugs.

Rose-bugs are among the worst enemies of the grape-grower. After all else has gone well with his vines, he suddenly finds the flower clusters, or the clusters of just forming grapes, beset by these modest looking, drab-coated insects, which seem to delight in destroying the young grapes, eating off the flowers and young fruit. Where vines are trained in a regular manner, it is not difficult to save the clusters by shaking off the insects in the early morning, and catching them in a pan holding a little water, upon which floats a film of kerosene. But every one is not on the lookout for the Rose-bug, and when it is too late to apply a remedy, many discover by the ragged clusters the destructive work that has been wrought by this pest. Mr. E. H. Miller, an intelligent cultivator at Wading River (L. I.), N. Y., informs us that he finds wherever the ornamental shrub, commonly called *Deutzia scabra*, grows near his grape vines, the Rose-bugs take to the flowers of the Deutzia in preference, and thus his grapes are protected. We have observed that our own vines have this year and last been remarkably free from Rose-bugs. There is near our little vineyard a row of *Deutzia gracilis*, and the Rose-bugs have been unusually few upon the flower clusters of the grapes. So far as this goes, it is indirect evidence in favor of Mr. Miller's observation. We stated that the shrub found to be a protection was that "commonly called *Deutzia scabra*," having in mind the fact that the shrub usually called by that name in the nurseries is *D. crenata*; but so far as its utility in protecting grapes goes, the name is of little importance. Grape-growers will be grateful for this hint, and cultivate a charming shrub with a double purpose.

Lavender Flowers and other Aromatics.

In an article in July last, on the culture of Lavender, we asked, supposing one had grown the plant, "What will he do with it?" This was asked in view of the fact that there is no regular demand for many articles that might be readily produced here, could the grower meet with a sure sale for his crop. Mr. Atkinson writes us from Bloomfield, Miles Co., N. J., that so far as Lavender flowers are concerned, the tobacco manufacturers of the country use yearly fifty thousand pounds of the ground flowers for flavoring certain brands of smoking tobacco; that a company there grinds annually from twenty thousand to thirty thousand pounds. He sends us a sample of the ground flowers—a delightful perfume it has. Mr. Atkinson writes us, that he thinks that there is no danger of overstocking the market, as at present they are entirely dependent upon Germany for the raw material for Lavender, as well as for various other articles used by the smoking tobacco manufacturers, such as Coriander, Anise, Fennel, Cummin, and Caraway Seeds, Sweet Clover, Laurel Leaves, etc. We thank Mr. A. for his information, and agree with him when he doubts if this country can compete with the cheaper labor of Europe in the production of the articles he enumerates. Still it is well for our cultivators to know that there is a demand for such products.

Do You Want Window Gardens?

Those who cultivate house plants, usually set them out in the open ground for the summer. Here, they are allowed to grow at will, and often increase to several times their former size. When the amateur is warned by the approach of frost, that he must take in his plants, he finds that he has a lot of unmanagable subjects. The roots are many times too large for the pots, while the tops have run wild and made a tangled mass, quite unsuited to window culture. As a rule, geraniums, verbenas, and other soft-wooded plants, when set in the open ground, are not worth anything afterwards. It is much better to strike cuttings from the old plants, and depend upon these for the window in winter. With a view to preparing a stock of young plants, we have, in earlier months, described easy methods of propagation. If this has been neglected, and old plants must be used, if any, then the work of taking them up should be done this month. If left out until the nights become cool, the growth of the plants is checked. If taken up, they do not readily recover from the shock of removal, and the window garden becomes a hospital for struggling plants. When overgrown, cut the plants back into shape, both at root and top, and pot them. Severe treatment will be needed, but it this be done early, there will be time for them to recover. After a few days in the shade, give them a warm and sheltered place, and they will recuperate and start into new growth before it is time to take them in doors. While it is not advisable to take in house-plants too early, they should be protected during cool nights, and it is well to keep them on a piazza or in some other place, where they will have sufficient protection.

Brick and Tile Edgings for Gravel Walks.

Unless there is a protection of some kind placed between the gravel on the walk and the soil of the border, the rains will soon mingle the two, and allow the grass to obtain a foothold upon the walk.

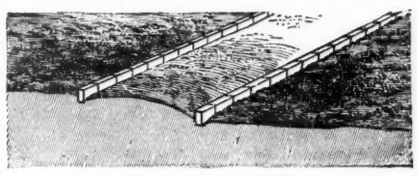


Fig. 1.—GRAVEL WALK WITH BRICK EDGING.

Stones and tiles, shaped in fancy forms, are sometimes used as edgings, but they are somewhat expensive. As a good, serviceable substitute, common bricks or horse-shoe tile may be used. The manner of laying bricks is shown in fig. 1; they may be either set on end or laid lengthwise, only projecting about two inches above the level of the walk. Hard bricks, with square corners and of a uniform color, should be selected; an edging laid with these presents a pleasing appearance. In making an edging with horse-shoe tiles, place a board between the gravel and soil, and upon the upper edge of this lay the tiles. The

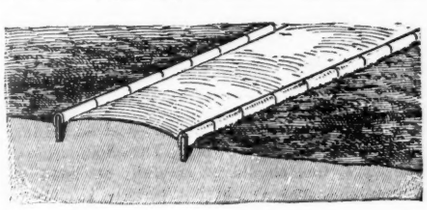
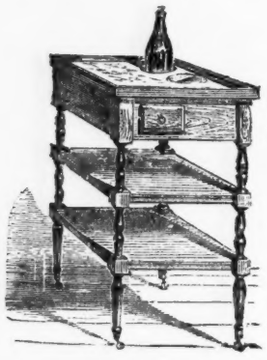


Fig. 2.—TILE EDGING FOR WALKS.

boards will serve to keep the tiles in line and the gravel in position. Two-inch tiles should be used, being careful to select only those that are straight, well burned, and alike in color. When once in place, the tiles are not easily broken, and present a finished appearance. Figure 2 shows the manner of placing the tiles upon the edge of the board,

Don't Leave the Table.

It is often that the one who presides at the table must also be her own waiter there, and it is very annoying to her, and to the guests, to be obliged to leave her seat every now and then to get some needed article, or to change the plates. Much of this unpleasant movement may be avoided by the use of a low side table; we have heard this called a "dumb waiter," a name which belongs to a very different affair; the French call it a *servante*. The engraving shows a convenient form for an arrangement of this kind; the size may be larger or smaller, according to that of the table itself. It should be strong and solid, and provided with casters, to allow it to be easily moved. The shelves below are important; they increase the holding capacity, and allow soiled dishes, etc., to be put out



A COMMON SIDE TABLE.

of sight. We have seen an excellent makeshift made from a box of convenient size, placed upon rollers; in this there was a shelf, which, with the bottom and top of the box, afforded three places to hold articles. A strip around three sides of the top will be useful to keep articles from slipping off. A common box, with the sides neatly upholstered with some material of quiet color, and the top, shelf, etc., covered with oilcloth, would answer. These side tables are very common in city homes.

Hints for the Sick-Room.

Sickness is too apt to be synonymous with sadness, and it is all important that the person in charge of a patient should wear a bright, hopeful countenance. The weak look to the strong for support, and are quick to mark the slightest tokens of uneasiness or apprehension on the part of those about their bedsides, although they may give no outward expression of their sense of it at the time. A nurse who combines apparent confidence as to a happy result, with the tender attentions necessary to secure it, does but discharge the proper functions of her calling, save in extreme cases, of which we are not treating here.

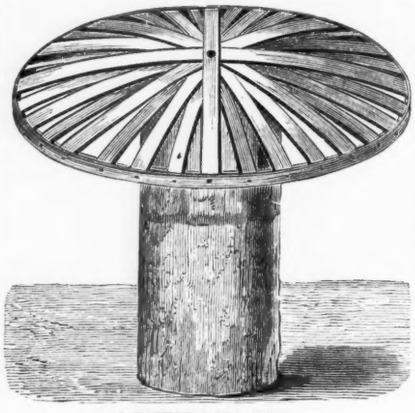
Let the nurse be quiet. Let her dress be of no stiff or rustling material; her shoes of a kind that shall in no wise creak or cry. The modulation of the voice, too, should be carefully attended to. We cannot, and should not, forbear attendance upon the sick, because nature has not gifted us with that rare, blessed boon, of a sweet and musical voice; yet, even more earnestly than the elocutionist, should the nurse study to modulate such organs as she does possess, to the utmost gentleness of which they are capable. For nothing is of greater importance, we would assure her, if she desires to soothe irritated nerves, and quiet perturbed spirits, than to use an habitually soft and calm speech in all her conversation, either with the sick or in their presence.

It is primarily important that an attendant should give quick heed to the physician's orders, and obey them exactly. The hard-headed and opinionated nurse is one who incurs a heavy responsibility, and in nine cases out of ten brings to grief her patient as well as herself. All important as is the province of the nurse, yet she should ever remember that it is subordinate to that of the physician, whose work it is to indicate the direction and limits of her course. The best things lose their good qualities when misplaced and ill-applied. Another quality that the nurse should sedulously cultivate is, watchfulness as to her patient's moods. She should adapt her conduct carefully to the demands of the minute, as indicated by expression of countenance, or even an involuntary gesture, where the case is of a sick person who would be patient if he could. In these days, when nervous maladies are so common, too much stress can not be laid upon this point. And yet it is a difficult lesson to instil by mere precept, for it involves tact, a subtile quality that is commonly thought to be more nearly allied to the graces than virtues, therefore rather an endowment of nature than a fruit of endeavor. Fortunately, however, for poor humanity, nearly every right thing and tact among the number is attainable by patient effort, guided by good sense, such as all people of sound mind may reasonably aspire to. Then let not the plainest nurse despair of attaining to this crowning grace of her profession.

In pursuance of this end, guard well the tongue. Take care that no disagreeable topic of conversation be continued, if perchance introduced. Get more imperative; guard against talking at all when the patient indicates by his own silence a desire for quiet. If the vote of all the sick were taken as to that fault in their nurses, from which they suffer most, we should not be surprised if, with one voice, they would say, garrulity. It is conceded that truth lies at the foundation of all popular beliefs; and if so, then nurses, as a class, are prone to talk too much. Let so base a vice as gossip no longer degrade one of the noblest and beneficent of human callings—the care of the sick.

A Seat in the Grove.

A correspondent sent us a sketch of his device for making a seat in a grove. A tree had been felled, leaving a stump of convenient hight. The top of this was made level, and surmounted with

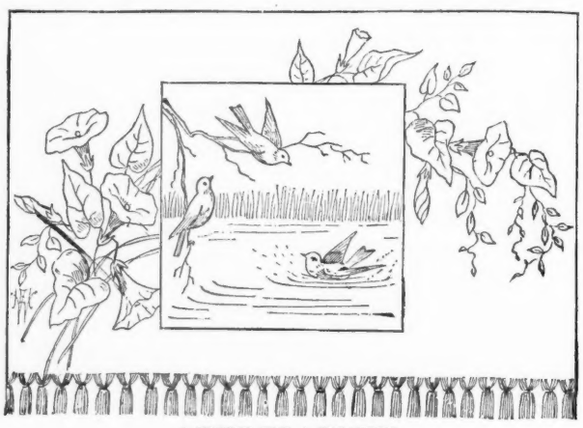


A BASKET YARD SEAT.

a cover of one of the modern styles of peach baskets, which is made of elastic splints. When this cover is attached by a strong nail in the center, it forms an inviting and convenient seat.

Splasher for the Wash-stand.

The material used in making this splasher is fine white crash, which may be purchased for about ten or fifteen cents a yard. The size of the splasher will depend upon the space to be covered. The material must be cut with the selvedge at the top and bottom. The raw edges at each end must be hemmed. Trace the design lightly with lead-pencil, and work it in outline stitch with fine cotton. Scarlet is prettiest, and retains the color better when washed. Follow the outline carefully that



A DESIGN FOR A SPLASHER.

the design may not be lost in working. Another pretty kind is made of linen, the design drawn on the cloth with indelible ink. In this case the design is not to be embroidered, as the color of the ink is permanent. The splasher is to be tacked to the wall just above the back of the washstand, thus preventing the wall from being spotted with water. Outline pictures of various designs may be used; flowers, birds, or a combination of both. The Kate Greenway pictures are favorites, as the quaint little figures can be very prettily arranged in a beautiful framework of flowers. M. E. W.

Cooking Vegetables Poorly and Well.

POTATOES—CABBAGES—TURNIPS—KOHL-RABI—PEAS.

The difference in taste and nutritiousness between properly and poorly cooked and served vegetables is very great; the extra cost and labor of the former are very little.

POTATOES are an expensive food, because four out of every five pounds are water; at thirty to thirty-five cents a bushel, they furnish more costly nutriment than flour at five dollars to seven dollars per barrel. Yet they are everywhere grown, are relished, and largely consumed. In all methods of cooking whole potatoes, select those of nearly the same size, whether large or small, as the cooking will be more uniform. Baking is preferable to boiling, if they are done through without blackening or hardening the shell, as they are more mealy, are swallowed in a more finely pulverized condition, and therefore more easily digested, and all the nutriment is preserved, as proper baking merely expels the useless water. Any portion that is blackened or baked hard is indigestible, and furnishes little or no nutriment. As ordinarily hard baked, not over half of their substance is appropriated as digested food. Pricking them with a fork in many places before baking, aids the escape of moisture and renders them more mealy. If boiled in their jackets, peeling should follow, and then et them stand awhile in a hot kettle or baking pan until the contained water escapes. If pared before boiling, a wearisome, wasteful, useless process, the after drying is desirable, but slight baking after boiling is an improvement, rendering watery, soggy kinds more palatable and digestible. Frying potatoes is the worst method, though if in very thin slices, ordinary digestive organs can dispose of them. Small new or unripe

potatoes may have the outer skin scraped off, or larger ones be peeled, and a delicious dish prepared thus: Boil until tender, pour off the water clean, and while they are steaming dry, prepare a milk gravy. Into each pint of boiled milk required, stir a little salt, and a tablespoonful each of butter and flour, well rubbed together. If at hand, add a little parsley, chopped fine. When thoroughly scalded, pour it over the potatoes, the larger ones being first cut small. Mashed potatoes, rightly made, are a very good dish, but in our observation, not over one family in five prepares them well. First in importance is to take out every bit of skin, eyes, or other discolored portions; next, to mash them so thoroughly that there shall be no lumps left. You then have a uniform substance, with no suggestion of dirt or of diseased spots in the original potato. The additions of butter, milk, or cream, all good, must depend upon what one has on hand, and the economy necessary or desirable. Salt, but not too much.

CABBAGES, TURNIPS, AND KOHL-RABI, of any age, but especially when young, boiled tender, well drained, and cut fine, are greatly improved by pouring over them the sauce above described.

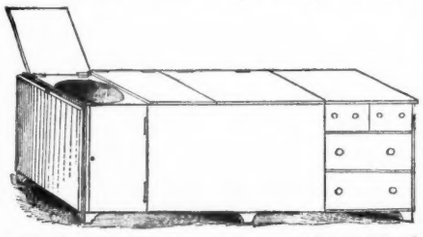
GREEN PEAS AND STRING BEANS, if boiled tender, and drained well on a colander or sieve, are much improved by being scalded in milk seasoned with butter and the needed salt. Smooth-skinned peas (the unwrinkled varieties, like Marrowfats, Daniel O'Rourkes, etc.) are, to our taste, much better with the addition of a very little sugar. Cream, if to be had, is superior to milk, or milk and butter, for nearly all kinds of vegetables. J.

Don't Spoil Food with Salt.

Tastes differ widely in reference to salt. One likes food almost as salt as brine. Another dislikes the taste of salt greatly. To some it is almost poisonous in ordinary quantities, greatly disturbing digestion. A small quantity is usually beneficial as well as agreeable; more than this is useless, and is more or less harmful, disturbing and vitiating the digestive fluids, a tribute to a vitiated taste and habit. A little on the outside of the food is more readily tasted than a much larger quantity mixed in before or during cooking or preparation of the food. As more can be added if wanted by any individual of a company, and as when once in it can not be got out, our house-keeping friends should always use moderation in salting food.

A Convenient Baking Table.

The table from which the engraving is made stands under a north window, in a large kitchen, is



convenient to the stove, and arranged to hold all or nearly all the articles needed in baking. The table is two and a half feet wide, six feet long, and high enough to take in an ordinary flour barrel, from which three inches of its top has been cut. It is made perfectly tight, and is raised three inches from the floor on six feet. It has four compartments. The first is to hold the flour barrel, and beside the lid in the top, has a door in the front. The second compartment has a sliding partition in the center, and is for Indian meal and Graham flour. The third compartment has a similar partition, and holds sugar. The last compartment is fitted up with drawers for holding baking powder, soda, cream of tartar, spices, extracts, etc. The top of the table is finished for use in making bread. A board for moulding bread is made to fit on the top, two and a half feet square, and when not in use, hangs at the side of the table by a ring and hook. Where baking is to be done for a large family, a table should be devoted exclusively to that purpose, and one like the illustration will be found much more convenient than an ordinary kitchen table. F. T. G.

"German Toast."—Excellent.

A capital dish for breakfast or tea, or for dessert, is the following, the directions for which we solicited for the *American Agriculturist* from a lady friend, at whose table we have partaken of it with decided satisfaction: Into a pint of milk stir three well beaten eggs, with two tablesoonfuls of flour and one of sugar, being careful to keep out all lumps. Soak in this, until saturated, medium thick slices of light bread; baker's bread is usually preferable, unless the home-made is light and porous. Have ready, hot, a spider or frying-pan, with just enough butter to prevent sticking. Fry to a golden brown; remove the slices, butter them, and sift on powdered sugar. Pile together, cover, and keep warm until served. Properly made, this is delicious, nutritious, and easily digested, if too much butter be not used.

THE SAME, WITH SAUCE.—The above is preferred by some with sauce, instead of butter and sugar, thus: For two or three persons, rub well together two tablespoonfuls of butter, one teaspoonful of flour, and half teacupful of sugar, more if preferred. Stir this first with a little cold water, and then with a full cup of hot water, and boil. Then flavor to taste with lemon, vanilla, or rose-water. This sauce is, to our taste, improved by stirring into it, just before taking from the fire, the whole of an egg beaten to a froth. Serve this with the toast, or the pieces may be dipped into it, laid together, covered, and kept warm until wanted.

Grasses for Winter.

Most beautiful are the grasses, whether made into bouquets by themselves, or used with the dried or "Everlasting" flowers. The grain fields, the meadows and road-sides, as well as the swamps and marshy places, afford a great variety. These should be cut when they seem to be in perfection, and dried rapidly in the shade. Those of a stiff appearance, such as have their flowers in an erect spike, may be tied in small clusters, and hung to dry with their heads downwards. Other grasses, with their flowers in graceful panicles, would be spoiled by this treatment. For these, provide a box of convenient size, filled with dry sand; the stems of the grasses can be stuck in the sand, and the flower clusters will dry in a natural position. A garret or any unused room will answer for drying the grasses, and they may be left in the boxes of sand until wanted for making up into bouquets. A well arranged bouquet of dried grasses will make a welcome Christmas present. Select a damp time for making up the dried grasses into bunches or bouquets, as otherwise they may be so brittle that many of the smaller stems will be broken off. There are directions given for coloring, bronzing, and otherwise giving grasses an unnatural appearance. We consider all these in bad taste. Colored grasses are disgusting to us; those that are dried in the shade will keep their beautiful natural colors.

Canning Fruit.

The season for canning fruit and vegetables is now at hand, and those house-keepers who have not been successful in their attempts at this work, will find the following a most excellent recipe: Place the fruit in either a granite iron, or porcelain kettle; never use common iron, brass, or tin for this purpose. Allow it to boil for about five minutes. Have the jars in readiness, and standing in a vessel of warm water, so that they may be heated gradually. Just before filling the jar with fruit, dip a towel in boiling water and wrap it around the jar, and tuck the corners under the bottom for the jar to rest upon. Fill the jar quickly, and when full, thrust a knife to the bottom and stir it around several times, and the air bubbles will rise to the top. Seal as tight as possible, and stand the jar on the top in a moderately cool place. In a few hours turn the jar up, and try to seal tighter, standing it again on the top. Continue this several times, or until the cover is tightly screwed on. Stand the jars in a cool, dark place in the cellar, looking at them occasionally for a few days. For several years the above has been my method of canning, and I know from experience that all varieties of fruits and vegetables can be canned with perfect success in this way. N. B.

Arranging Flowers for the House.

As usually arranged, flowers are to a great extent wasted. If one cuts a bouquet, allowing each flower a stem long enough to reach the water, and makes it up as the materials are gathered, a large share of the flowers will be hidden, and many buds be sacrificed that should have been allowed to

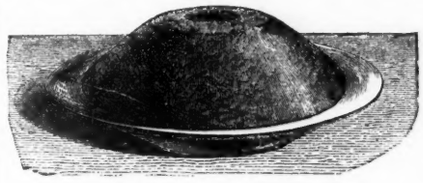


Fig. 1.—A DISH FOR FLOWERS.

open. From the same materials, a florist, or one with a little of his superior skill, would make two handsome bouquets, and both of them better in appearance than one thus put together. Where there is a great profusion of flowers, the waste in this careless arrangement is not of so much consequence; but where flowers are few, it is well to make them go as far as possible. To practice all the flower-saving methods of the bouquet-maker, would require more time than most persons would care to give, but one of their styles takes but little time, and is very effective: the arrangement of flowers in plates and other dishes. The material for keeping the flowers moist may be sand or moss. If sand, it should be free from pebbles, and if sea sand is used, it must be washed, to remove the salt. When used, it must be damp enough to hold the shape into which it is formed; if too wet, it will run. For moss, sphagnum, or peat moss is

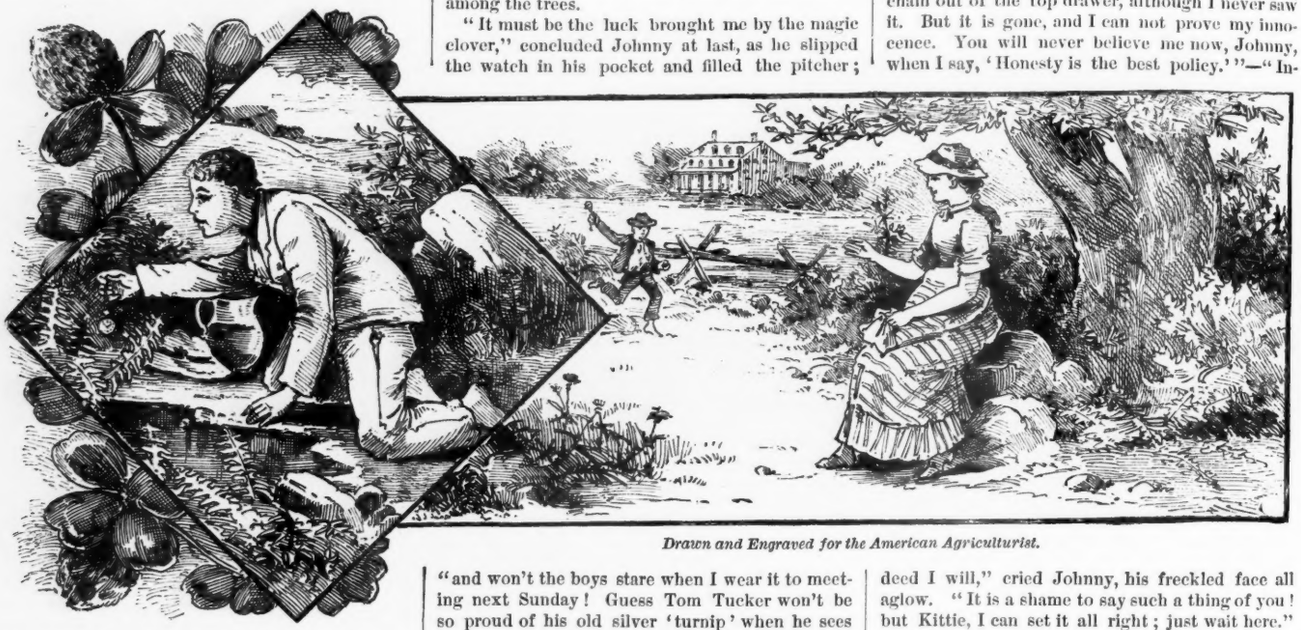
Fig. 2.—A DISH OF FLOWERS.

best; allow it to dry, rub it up between the hands to break it up well, then wet it, and squeeze it in the hands as nearly dry as may be. In the absence of sphagnum, some of the mosses that grow in sheets upon rocks and around the bases of tree trunks will answer. Pick out leaves, stems, etc., and break up the moss, so it will hold the shape into which it is fashioned. In gathering flowers to arrange in this manner, long stems are not needed. A good supply of green should not be forgotten. In making up, begin below and build upwards, using green to hide the sand or moss wherever needed. Arranging in this manner admits of great variety, not only in the disposition of the flowers, but in the shape of the vessel used and the form given to the groundwork. Some flowers, like Balsams, Clematis, etc., show to the best advantage when looked directly down upon, and such should have a flat or but slightly convex foundation. The engraving, fig. 1, shows a groundwork that is ready, and fig. 2, the arrangement completed.

The Four-Leaf Clover.

Johnny Halliday was raking hay in Farmer Turnipseed's meadow, and as he busily worked he whistled a merry tune, for he felt very happy that summer's day, though why he could hardly have told, except that the sky was so blue, the smell of the new-mown grass so very sweet, and he was so glad to have a week's engagement at such pleasant out-door employment as hay-making.

"There is fun in being a country boy, even if one is poor," thought Johnny; "but I should not mind having one fine suit of clothes like that



Drawn and Engraved for the American Agriculturist.

chap," and he followed with his eyes a lad of about his own age, who, mounted on a gray pony, came cantering up the road leading from the summer hotel down by the river; "and, above all, I would like to go to a first-rate school, as I s'pose he does, for I don't want to grow up without knowing anything." And Johnny heaved a little sigh, for his greatest desire in life was to be able to go to the Academy at B——, a town some five miles distant, but to which his uncle, with whom he lived, could never afford to send him. His mind, however, was soon diverted, for as his eyes came back from the young rider, now disappearing over the hill, they fell upon something growing down by the fence, and he exclaimed joyfully, "Hallo! if there isn't a four-leaf clover! and that always brings the finder good luck." He picked the tiny green leaf, and stuck it triumphantly in his ragged straw hat. "Now we'll see what fine thing turns up," and he flourished his rake more vigorously than ever.

"Johnny, Johnny Halliday!" called Farmer Turnipseed, coming toward him, with a large brown earthenware pitcher in his hand, "just run over to the spring and get us some cool drinking water; this scorching sun makes us thirsty, and it wants an hour yet of noon and lunch time. But hurry as fast as you can."—"Yes, sir," said Johnny, glad of the rest; and taking the pitcher, set off on a run toward a clump of trees some quarter of a mile distant. Here it was delightfully cool and shady, and made more refreshing by the spring water which gushed out of the rocks clear as crystal, and fell into a beautiful moss-fringed hollow, like a basin below. "This is jolly!" cried Johnny, kneeling down and taking a long drink of the pure liquid, using his little sunburned hands for a drinking-cup, "and just the place for fairies to live in"; for his grandmother had told him many stories of elves and brownies, which old country people half believe frequent the woods, and which he liked to imagine were true, although he knew better. "So, little folks," he called playfully, "as I have found the four-leaf clover, I wish you would appear and give me three wishes, as they do in the fairy books." The words had hardly passed his lips when his sharp eyes caught sight of something bright glittering amongst a bed of feathery ferns near by. "What can that be?" thought the boy, now quite sober; and half afraid, he plunged his hand down in the damp leaves, and held up a little gold watch, suspended by a slender chain. "Oh, what a beauty!" he exclaimed. "I never saw one half as elegant; but how did it come here?" That was the mystery, for nobody in that neighborhood owned such a watch, and few strangers knew of the little spring hidden up there among the trees.

"It must be the luck brought me by the magic clover," concluded Johnny at last, as he slipped the watch in his pocket and filled the pitcher; "and won't the boys stare when I wear it to meeting next Sunday! Guess Tom Tucker won't be so proud of his old silver 'turnip' when he sees this." And with his head full of these delightful anticipations, Johnny scampered back to the hay field with his brimming pitcher. He told no one of the treasure he had found, but all the afternoon he was so much engaged trying to decide whether to sell the gold watch for a good round sum, or keep it for himself, that Farmer Turnipseed had several times to reprove him for idleness; and when at sunset he turned his face homeward, the world did not seem so bright as it had in the morning, for uneasy doubts had begun to creep into his mind, and he wondered if he ought not to at least try and find the owner. But he hated the idea of giving up the beautiful watch and chain, the finest piece of jewelry he had ever seen, to any one, and on reaching home he hurried to his own room, and hid it carefully away in a cigar box, which held the few treasures he possessed.

"I saw Kittie Rose this afternoon," said his Cousin Annie, as Johnny joined the family at the supper table. "She has been hired to help at the 'Riverside Hotel' for a few months, and is delighted, for she hopes to earn enough to go and see her old mother, who is very feeble."—"I am glad of that," said Johnny, for Kittie had once nursed him through a long illness, and he was very fond of her; but as he spoke, some words of her's came back to him, and he turned very red, for they were these: "Remember, Johnny, dear, that 'honesty is always the best policy.'"—"Are you warm?" asked Annie. She opened her eyes in surprise when her cousin muttered something about not being hungry, and rushed out of the house. For the first time in his life, Johnny lay awake far into the night; and how dreary the hooting of the owls and chirping of insects sounded outside; and when he did fall asleep, it was only to be tormented by ugly dreams. He got up in the morning dull and heavy-eyed, and as he put on his hat, still adorned with the withered leaf, he wondered if the clover had brought him such very good luck after all. It was still early when he started for the hay field, but some one was before him, for, as he trudged slowly along, his bare feet making deep prints in the dusty road, he came upon a young woman sitting by the wayside, her face hidden in her hands, and crying as though her heart would break.—"Why, Kittie!" he exclaimed, "what is the matter? I thought you were as happy as a lark up at the big hotel."—The girl raised her head, and, seeing who it was, sobbed, "Oh, Johnny, so I was, so I was, but I have been turned away; and what is more, my character taken from me, and it will kill my poor old mother to know I am in disgrace."—"But what have you done?"—"Nothing, nothing whatever; but I took care of Master Le Roy's room, and they say I stole his watch and chain out of the top drawer, although I never saw it. But it is gone, and I can not prove my innocence. You will never believe me now, Johnny, when I say, 'Honesty is the best policy.'"—"Indeed I will," cried Johnny, his freckled face all aglow. "It is a shame to say such a thing of you! but Kittie, I can set it all right; just wait here." And away he sped down the road. In ten minutes he was back, flushed and excited, waving the watch and chain in the air. The girl could hardly believe her eyes; but without waiting to explain, both hastened to the hotel, and inquired eagerly for young Master Le Roy. He came down-stairs, accompanied by his father, who looked very grave when, having heard Johnny's story, he turned to his son, the same lad who had ridden past the hay field the day before.—"I thought, Arthur," he said, "that you were certain of having left your watch in the top drawer?"—"I believed I did, but I must have worn it yesterday, after all, and dropped it when I ran up to look for the little spring Mr. Preston told us of."—"Nothing is so easy as to be mistaken, and you have caused a great deal of trouble to this poor girl by your carelessness and forgetfulness, and would have lost her place had it not been for this honest boy; so I shall insist upon your giving her all the pocket money you have left."

With a wry face, Arthur drew out his purse and emptied a collection of bills, silver, and copper into Kittie's lap, who, after some protesting, was forced to accept it, and went back to her work with a beaming countenance. "And now, my good lad, what can I do for you?" asked Mr. Le Roy, turning to Johnny, who was uneasily twirling his hat in his hands. "It must have been a temptation to you to keep the watch, for it is a very valuable one."—"It was, sir," confessed Johnny, "until I saw Kittie; but now I am glad to be rid

of it, even though I never get another chance to go to the Academy."—"What Academy is that?"—"The school at B——, sir. I did think of selling the watch, and trying to get in there next winter; but it is no matter, as Kittie is all right."—"You seem very fond of your friend; but as you certainly deserve a reward, let me give you this to help you toward an education, for I love to assist ambitious and honest boys," and he placed in Johnny's hands a bill for so large an amount as almost to take his breath away. He could hardly utter his thanks, but his shining face was enough, and the gentleman felt quite satisfied.

So fall found Johnny where he had so long wished to be, and he soon proved himself as good a scholar as he was a hay-maker. He always laid his good luck to the four-leaf clover, but Kittie's favorite motto had much more to do with it. I think Johnny Halliday will always remember that "Honesty, in all cases, is the best policy," and live up to it, too.

The Doctor's Correspondence.

I hope the young friends who have written me will not think, because I do not give them special answers, that their letters are not welcome. I prefer to make general replies, that will interest a large number of young folks at once, as I often do in the "Talks," the topics for which are often suggested by your letters. One correspondent asked, a while ago, about trained goats, and if there was a place where those broken to harness could be bought. I am not aware that there is,

A SALE STABLE FOR GOATS.

The squatters, who build shanties on unoccupied lots in the upper part of New York City, keep numerous goats for milk. The boys of these settlements take the Billy-goats, when very young, fit them with a rude harness, and hitch them to a small store box, provided with rude wheels, to serve as a wagon. As the goats grow, they have better harness, and a wagon large enough to carry the boy trainer. Trained goats may be picked up in such neighborhoods in most large cities.

THINK WELL OF IT BEFORE YOU BUY.

Probably no more destructive animal than a goat can be let loose on a farm or in a garden. In a city, where they are kept stabled, like horses, they have little chance for mischief, but in the country they do a vast amount of injury. Master L. T. H. recently wrote me about his "nice Billy-goat, which is very fat;" he has "a sulky and harness," and when he takes a ride, the goat "trots just like a horse."

THIS IS ONE SIDE OF THE STORY.

In telling about the goat, and its pretty ways, he says: "He will eat almost anything; he goes to the heap, and eats ashes. He goes into the house, and eats the plaster from the wall; he eats up all the papers, and pulls the table-cloth from the table, and breaks all the dishes." Certainly, a very interesting pet! Perhaps the youngster's parents are only glad that there is not a pair of them. On the farm a goat makes sad work with young trees. Horace Greeley once wrote that a goat on his farm, "barked everything except the crow-bar."

ABOUT KEEPING RABBITS.

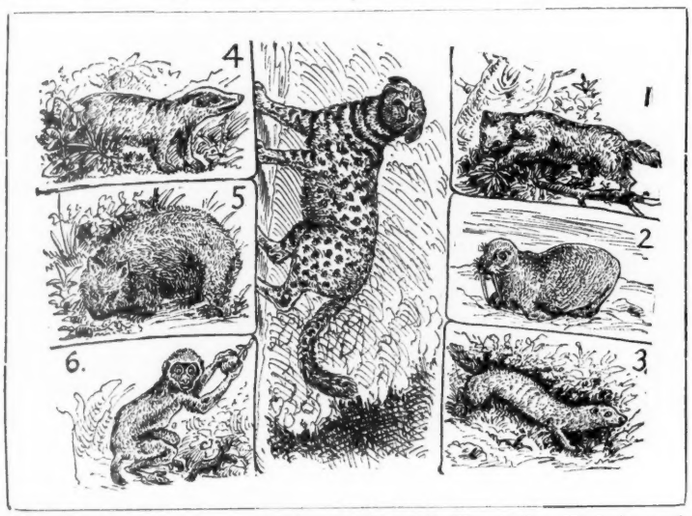
"W. H. B.," and others. I doubt if there is much profit in keeping rabbits to send to market, though there may be for home use, especially in places where fresh meat is not readily procured. Probably the only way in which a person can make rabbits pay, is to get a choice variety, such as the Lop-ear, Angora, etc., and sell the little ones to those who wish to raise them. The rabbit is not quite so destructive as the goat, but a pair will do an astonishing amount of mischief in a single night. If rabbits are to be kept, the only safe method is, to confine them constantly and singly in hutches, as rabbit-houses are called. The size is not very important. Each hutch should have a large and a small compartment; the floor should slope slightly, with an arrangement for carrying off liquids, and the hutch so contrived that the floor may be cleaned daily. Moreover, cover all edges with thin sheet tin or zinc, to prevent gnawing.

CERTAIN RULES MUST BE OBSERVED,

else the rabbits will sicken and die. Absolute cleanliness is very important. The floor should have a daily cleaning. The feeding must be regular, morning and evening. While rabbits will eat a large amount of garden refuse, they must not be fed on green food only. When green stuff is given, it should never be wet, and it is all the better if somewhat wilted. With the green stuff, they must have dry food, such as hay, oats, etc.

How Many Weeds Do You Know?

It would be a strange farm or garden that did not produce many weeds. The majority of these have names by which they are called in the locality. Now I wish you, boys and girls both, to send me the names of all the weeds you meet with, or can get names for, during this month and the next. I of course refer, not to the botanical names of the plants, but to the common names by which they are known to your family and to the neighbors. I have a reason for asking this, which may appear later. Just now I can only say that for the five best lists of weeds, I will give each of the senders a good and useful book, and if there are more than five lists which seem to deserve it, I will extend the number. Please observe, that what I want is, the names, common in your locality, of the weeds of your place, whether on the farm or growing on the road-sides. If you can give botanical names, do so, but the common, popular names are what I am after, such as "Rag-weed," "Goose-foot," and the like. If you do not know the name of a weed yourself, ask for it from others. Make as full lists as you can, and send them to me early in November, giving your name and post office address in full. Direct your letters to "The Doctor," care *American Agriculturist*, No. 751 Broadway, N. Y.



The Animal Diagonal.—No. 1. A climbing member of the Weasel tribe. No. 2. A sea animal. No. 3. A hunter. No. 4. A burrowing member of the weasel tribe. No. 5. A placid Australian animal. No. 6. A well known animal. The diagonals make the name of the central animal, which is a kind of a Tiger.

The Egg Pig.

The engraving shows how a few lines added to the drawing of one object, may change it into another. An egg is an easy thing for any boy or girl to draw on a slate or paper. Near one end of the egg place a dot in a circle, and attach a coiled line

to the opposite extremity. Above the eye draw the ears, and a snout below, and with the addition of the feet, you have a pig that is "fat enough to kill." If you take the egg endwise, the face of the pig may be drawn within the circumference of the shell, and then, by making the short legs, the fat animal will be facing you. Try it, and see.

Prepare Now for the Holidays.

Boys and girls may even now begin to prepare for winter decorations. When the Christmas holidays come, you will be glad that we have given you this hint to prepare for them early. Among the things that young people can collect are

AUTUMN LEAVES,

for the decoration of the church, the school-room, and of your own homes. You will find that you can make no more acceptable present to a city friend than a collection of nicely dried, brightly colored autumn leaves. Many suppose that the brilliant colors of leaves are produced by frost. This is a mistake; the colors of leaves, as well as of fruits, come with ripeness, and usually the more gradually the ripening takes place, the brighter are the colors. Some leaves ripen and color this month, especially those of the "Smooth" and "Stag's-horn" Sumachs, which take on an intense scarlet color, while those of the "Dwarf" or "Mountain" Sumach, later in the season, become a rich purple. The leaves of the sumachs are among the earliest to ripen, and they should be gathered as soon as they show their change of color. The Maples, the Red or Soft Maple, and the Sugar Maple, afford most brilliant leaves, varying in color from yellow to orange, and rich scarlet and crimson, and often are beautifully variegated. These, in some localities, begin to turn in August. They should be watched, for those which change color the soonest are often the most brilliant. Then there is the Virginia Creeper, found everywhere, and often called "Woodbine," which gives a great variety of rich colors, often long before any frost comes. While the leaves of these trees and vines are among the most showy, you will find brilliant leaves upon a great number of others. You will ask,

HOW SHALL WE PRESERVE THE LEAVES?

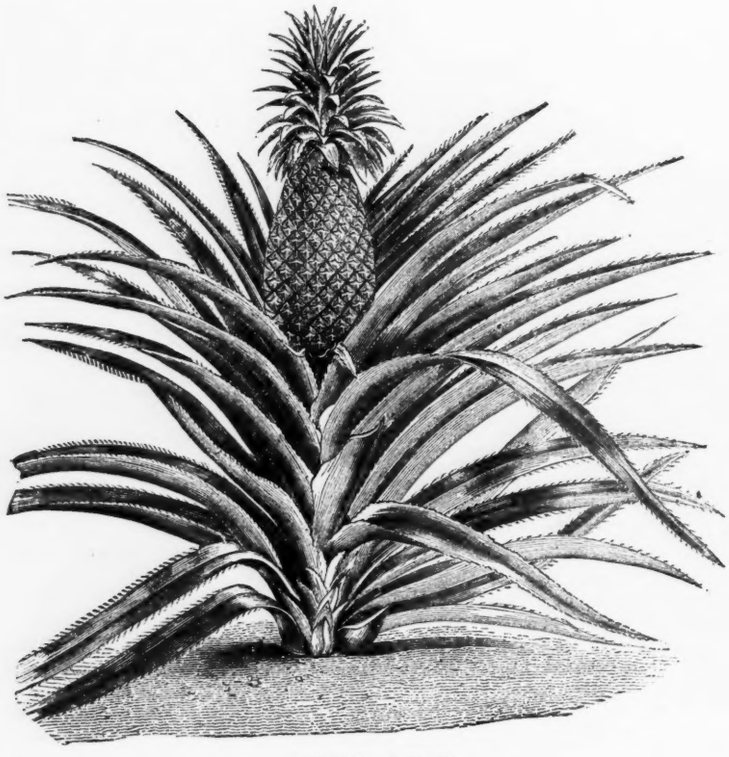
This beautiful coloring is the first step towards decay. To preserve the colors, decay must be stopped as soon as possible by rapidly drying the leaves. Pressing them between the pages of a useless book, or between old newspapers, will generally answer. The surest way of preserving the colors is to dry the leaves rapidly, by placing them

between papers, and then ironing the papers with a warm flat-iron, not too hot. The object should be to dry the leaves as quickly as possible, and arrest the change that has already commenced. Keep the leaves flat after they are dried; place them in a book or between papers, with a moderate weight upon them. We will tell you how to use them later in the season. In collecting autumn leaves, it is well to secure an abundance, as you will find that many friends will be glad to receive them. There is sport in gathering colored leaves.

The Doctor's Talks.

PINE-APPLES AND BANANAS.

A young friend, living in a distant inland town, has evidently just become acquainted with these fruits, and wishes me to tell him about pine-apples and bananas, where they come from, and what kind of trees they grow upon. They are both fruits of warm countries, and are brought in large quantities from the West India Islands and Central and South America. They come in swift steamers to New York and other seaports, where they are both important articles of trade. Since railroads have become so numerous, these fruits are now carried far inland, and there are but few places of any size where they are not occasionally sold. The name, and especially the dealers' and gardeners' name, "pines," give the impression that the pine-apple may grow upon a tree, but the name is said to have been given to the fruit on account of its resemblance in shape to that of the cone of a pine tree.



A PINE-APPLE PLANT.

A NATIVE OF SOUTH AMERICA.

The pine-apple is a native of South America, but it is now grown in all warm countries. In Europe it is often cultivated under glass, an expensive style of gardening, not much followed in this country, especially as in one part of our territory, the lower portion of Florida, it is raised in the open air. The engraving shows the general appearance of the pine-apple when growing. There is a tuft of long curved leaves, often very prickly on the edges, with the fruit in the center, raised upon a short stem. The fruit has at the top a crown of leaves, and at the bottom several offsets or suckers, which are usually attached when it comes to market. The plant is propagated by means of these suckers, which readily take root. You will naturally ask about the flowers of this interesting plant, and will look in vain for the seeds; indeed the pine-apple is not a single fruit, on the contrary, it is a cluster or a mass of fruits.

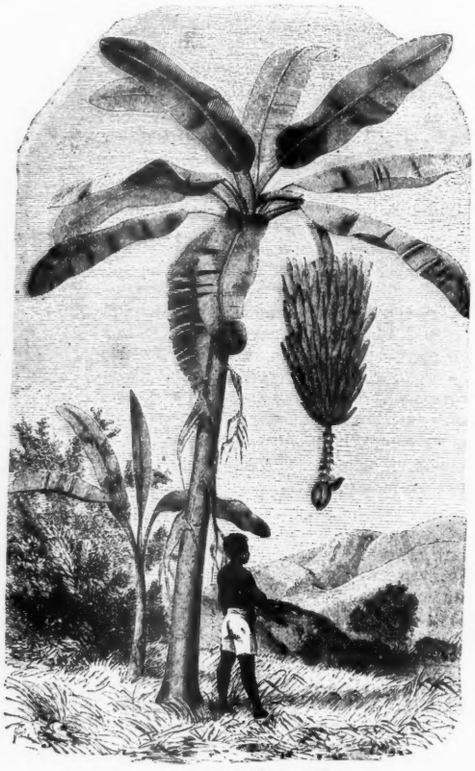
It more closely resembles a mulberry than any other of our fruits. The mulberry is the ripened remains of numerous small flowers. The more or less six-sided divisions upon the surface of a pine-apple, each represents a flower; if you carefully cut open one of these "knobs," you can perhaps make out the parts of a flower. In ripening, the parts, calyx, corolla, bracts, seed vessel and all, become a juicy mass, and even the central stem becomes fruit-like and juicy. In this general change of the parts, seeds very seldom ripen. In the wild pine-apple, where the fruit is much smaller and less pulpy, seeds are quite common. A number of distinct varieties are cultivated, which have been obtained from the seed. The botanical name of the pine-apple is *Ananassa sativa;* the first, or generic, name comes from the native Brazilians; the other means "eatable." The beautiful muslin-like fabric known as "pine-apple cloth," is made from the fibre furnished by a wild plant, related to the pine-apple, but with much longer leaves.

THE BANANA

grows in a very different manner; the appearance of the plant is shown in the engraving. Though the stem is so large, and from six to fifteen feet or more high, it is not properly a tree. The enormous leaves have very large and broad leaf-stalks, and what appears like the trunk is really made up of the leaf-stalks wrapped around one another.

THE FLOWER CLUSTER

is produced from the center of this crown of leaves; it has a long stalk, upon which the flowers are arranged in groups, covered by a broad scale, which falls away as the flowers open. The fruit which follows grows very rapidly, each cluster containing from one hundred and sixty to one hundred and eighty fruits, and weighing seventy to eighty pounds. After the bunch is gathered, the stem is cut down; new shoots at once spring up from the root, which in a few months bear fruit in their turn. Usually, the cultivated bananas have no seeds, the fruit being entirely filled with pulp. The plantain is a closely related fruit, and much like the banana, though longer in proportion. The fruits of these afford a large share of the food of the people of some warm countries. They are consumed raw and cooked in various ways, are dried and ground into meal, and are also dried in the same manner as figs. The leaves are used for covering cottages, packing, etc. Manilla hemp, so much used for ropes, cordage, bagging, and for making paper, comes from the stems of a kind of banana, the fruit of which is not eatable.



A BANANA "TREE."

Raising Butterflies.

"Harry T." can get the most perfect specimens of butterflies and moths by raising them. Besides this, much may be learned about insects and their habits by breeding them. It is well to make a breeding cage, though if supplied with an abundance of food, caterpillars are not apt to wander far. A cage may be made of a frame-work, or simply of a large box without top or bottom, and set on end. Cover the open portions with mosquito netting, and provide a large door. When you find any caterpillars you wish to raise, notice what they feed upon. While some are general feeders, others, unless supplied with the leaves of a particular plant, will refuse to eat, and starve. You must give your caterpillars fresh leaves in plenty, and you will be surprised to see what appetites some of them have. Cut branches or stems of the trees and plants, and place them in jars of water (old fruit cans will answer), to keep them fresh. If you do not know whether your caterpillars "spin up" above ground, or burrow when the time comes for them to go to rest, you should place a box of soil inside of your cage, to allow those that make their chrysalis in the earth to do so. If you can find the caterpillar of the "Regal Walnut Moth," it will be a most interesting one to raise, and see how its appearance changes with each cast of its skin, and so with many others. To have fine specimens of the perfect insects, the caterpillars must have all they can eat. In autumn, when the leaves have fallen, you can find many cocoons of large moths attached to trees and bushes. These should be brought home and placed in the breeding-cage until next spring, when the perfect insects will make their appearance.

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(Continued from last week.)

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6½	"	"		.60	"	"	.75
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OLD and NEW varieties STRAWBERRIES, Raspberries and Blackberries, GRAPES and Currants. Fruit and Shade Trees, Plants and Vines at *lowest* rates for *pure* and *genuine* stock. Liberal discount to the trade. *Catalogue, with Colored Plates, Free.* WM. PARRY, Parry P. O., N. J.

For Sale Cheap.

300,000 Peach Trees, 1 year from bud, raised from Tennessee pits. **100,000** Cherry and La Versailles Currants, 1 and 2 years old. **25,000** Concord Vines, 1 and 2 years old, together with a full assortment of other Nursery stock. Address,

STEPHEN HOYT'S SONS, New Canaan, Ct.

BLOOMINGTON NURSERY CO. BLOOMINGTON, ILL. Established 1852 by F. K. PHŒNIX, Incorporated 1883. We offer for the Fall Trade a very large & fine Stock of every description of Fruit and Ornamental **Trees.** Catalogue for Fall of 1883 now ready and mailed on application.
☞ **600 ACRES! 13 GREENHOUSES!**

Catalpa Speciosa!

HARDY WESTERN CATALPA.

One Million for sale this fall at the following prices:

	Per 100.	Per 1,000.
1 yr. old, 4 to 6 inches	$0.60	$3.00
1 yr. old, 6 to 9 "	1.00	5.00
1 yr. old, 9 to 12 "	1.50	7.50
1 yr. old, 12 to 18 "	2.00	10.00
2 yrs. old, transplanted, 18 to 24 inches	3.00	15.00
2 yrs. old, " 2 to 3 feet	4.00	20.00

No charges for boxing or packing.

Also, over sixty other varieties of Tree Seedlings and Tree Seeds for Forest and Ornamental planting.
Price List for fall of 1883 now ready, and will be sent free to all who apply.
My new work on Forestry will be sent free to all purchasers who order five dollars' worth of stock from this list. Address,

W. W. JOHNSON,
Snowflake, Antrim Co., Mich.

THE DINGEE & CONARD CO'S
BEAUTIFUL EVER-BLOOMING

ROSES

The only establishment making a SPECIAL BUSINESS of ROSES. 60 LARGE HOUSES for ROSES alone. Strong Pot Plants suitable for immediate bloom delivered safely, postpaid, to any post-office. 5 splendid varieties, your choice, all labeled, for $1; 12 for $2; 19 for $3; 26 for $4; 35 for $5; 75 for $10; 100 for $13. We GIVE a Handsome Present of choice and valuable ROSES free with every order. Our **NEW GUIDE,** *a complete Treatise on the Rose,* 70 pp. *elegantly illustrated—free to all.*
THE DINGEE & CONARD CO.
Rose Growers, West Grove, Chester Co., Pa.

Rumson Nurseries.
100,000 Peach Trees
150,000 Mulberry Trees for silk food; best varieties. **Silk-worm Eggs.—Choice Small Fruits.—75 Acres of Ornamental Trees** and **Shrubs,** including **Rhododendrons, Azalias, Kalmia, Japanese Maples,** etc. etc. **Catalogues Free.**
HANCE & BORDEN, Mang'rs, Red Bank, N. J.

WANTED. Salesmen to take orders for a choice line of specialities. STARK NURSERY, Louisiana, Mo.

S. MOULSON, Rochester, N. Y., Wants retail Salesmen on first-class Nursery Stock and **Pure Soap.**

BOWKER'S
Hill and Drill Phosphate with Potash.

A general Fertilizer for all crops, and low in price. Send for Pamphlet.
BOWKER FERTILIZER CO., Boston and New York.

THE OLD RELIABLE HALLADAY
STANDARD WIND MILL
27 YEARS IN USE.

GUARANTEED
Superior to any other make.
17 Sizes—1 to 40 H. Power
Adopted by U.S. gov. at forts and garrisons and by all leading R. R. Cos. of this and other Countries.
Also, the
Celebrated I X L Feed Mill,
which can be run by any power and is cheap, effective, and durable. Will grind any kind of small grain into feed at the rate of 6 to 25 bushels per hour, according to quality and size of mill used. Send for Catalogue and Price-List. Address
U. S. WIND ENGINE & PUMP CO. BATAVIA ILL.

THE PERKINS'

Wind Mill

is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address
The Perkins' Wind Mill & Ax Co.,
Agents wanted. **Mishawaka, Ind.**

7,000 CHALLENGE WIND MILLS.

IN USE IN EVERY State and Territory of the U. S. It is a sectional wheel, has been made by us for 15 years, and has never blown down without tower breaking, a record no other mill can show. **MILLS SENT ON 30 DAYS TEST TRIAL. BEST FEED MILLS, CORN SHELLERS, ETC. GOOD AGENTS WANTED** in all unassigned territory. Catalogues free. **CHALLENGE WIND MILL AND FEED MILL CO.,** Batavia, Kane Co., Ill.

The Watertown WINDMILL

THE BEST IN USE
Write for descriptive catalogue A
H. H. BABCOCK BUGGY CO.,
Successors to H. H. Babcock & Sons, Watertown, N. Y.

OLD RELIABLE STOVER.

We Manufacture the Stover Pumping Windmill, as well as Geared Windmills of all sizes, for running Grinders, Sheliers, Saws, etc. Also Feed Grinders, operated by Pumping Windmills. Corn and Cob Double-faced Grinders with Sweep, and Corn Cultivators. Write for Catalogue and Agencies.
FREEPORT MACHINE CO.,
Freeport, Ill., U. S. A.
Sole Owners, Proprietors, and Manufacturers of the Stover Wind Mill for the United States.

1883—AUTUMN—1883.
Those who wish to raise
DELICIOUS FRUITS of every description, or to ornament their grounds with New and
Beautiful ORNAMENTAL Trees,
Shrubs, Roses, Vines, etc., should send for our Abridged Catalogue, mailed free on application. Now is the time to prepare orders. Address,
ELLWANGER & BARRY,
Mt. Hope Nurseries. Rochester, N. Y.

ONEONTA CLIPPER.

This Plow contains the most remarkable improvements ever made in Swivel Plows. It is easy to handle, with **Shifting handles,** which enables the operator to walk with both feet in the furrow. The Hook or Latch is operated by the foot, so that the Plow is turned ready for use **without taking the hands from the handles.** Light to draw, firm, strong, and durable. Constructed of Patent Hard Metal, which is as strong and will scour equal to steel. We also make it of charcoal iron, at a less price.
An Illustrated Catalogue of all our Tools and Implements sent free.
THE BELCHER & TAYLOR AGRICULTURAL TOOL CO.,
Chicopee Falls, Mass.

SETH CHAPMAN'S SON & CO.,
DEALERS IN

Peruvian Guano

(from a cargo recently arrived from Peru.)

170 FRONT STREET
NEW YORK.

FARMERS who are interested in **Growing Crops** cheaply and successfully should write us for our pamphlet on pure fertilizers. ☞ A good fertilizer can be made at home for about $12 a ton by composting with POWELL'S PREPARED CHEMICALS. References in Every State. ☞ Agents wanted for unoccupied territory. Apply with references.
BROWN CHEMICAL CO.
Manufacturers of
Powell's Tip-Top Bone Fertilizer,
Bone, Potash, Ammonia, &c.
16 LIGHT STREET, BALTIMORE, MD

Peruvian Guano

DIRECT IMPORTATIONS.

The undersigned, having just received the first cargo **imported direct from the Deposits** under the new **Government Contract,** take pleasure in offering to the trade

PERUVIAN GUANO

of first class quality, and in excellent condition.
For particulars and prices, apply to

HURTADO & CO.,
Post Building, 16 Exchange Place, N. Y.

To Fertilizer and Chemical Manufacturers.

Please send quotations for Calcic Superphosphate, Potassic Chloride, Ammonic Sulphate, Sodic Nitrate, Potassic Nitrate, Precipitated Calcic Phosphate, Calcic Sulphate, in bulk, to Prof. A. E. MENKE, Agricultural College, Lexington, Ky. These substances must be of good quality, as they are for use on an experiment farm, and will be analyzed.

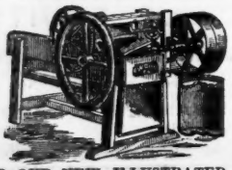
THE CHEAPEST

Force Pump

IN THE WORLD.

Especially adapted for Spraying Fruit Trees, Watering Gardens and Lawns, and washing Carriages. Will throw a steady stream 60 feet. Can be applied to any service that a Cistern or Force Pump can be used for. Send for Catalogue and Price List.
FIELD FORCE PUMP CO.,
Lockport, N. Y.

THE ROSS CUTTERS.



SEND FOR OUR NEW ILLUSTRATED CIRCULAR OF ENSILAGE AND FODDER CUTTERS.
E. W. ROSS & CO., Fulton, Oswego Co., N. Y.
☞ Mention *American Agriculturist.*

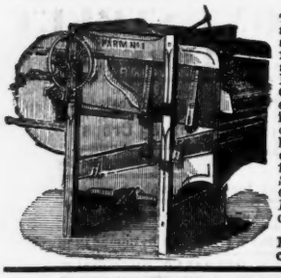
BALDWIN'S IMPROVED ENSILAGE & FEED CUTTER.
STRONGEST, SIMPLEST AND BEST.

Thoroughly tested during last four seasons, for Cutting Ensilage, and proved a perfect success. The leading Cutter for last sixteen years for cutting all kinds of dry and green fodder. Power cutters have Baldwin's Safety Fly Wheel; the only reliable wheel made. 18 Sizes for hand and power. Send for illustrated circulars containing description, prices and testimonials.
C. Pierpont & Co., Mfrs., New Haven, Conn.

AN END TO TROUBLE WITH GATES.

I will send Model or Miniature Gate on receipt of 75 cts., or two for $1.00, which will enable any man who can saw a board and drive a nail, to make a Farm Gate in **2 hours.** No brace, no rod, no counter balance. The maker may swing on it, and if it **sags,** I forfeit the money.
J. C. McAFEE, Dallas, *Marshall Co.*, West Va.

THE "CENTENNIAL" FANNING MILL.



THE BEST MILL IN THE WORLD. It separates Oats, Cockle, and all foul stuff from Wheat. Is also a perfect cleaner of **Flax, Timothy, Clover,** and all kinds of seeds. The great improvement over other mills is that it has two shoes. It is especially adapted for warehouse use. *Send for Descriptive Circular and Price-List.* Liberal discount to dealers.
Address, S. FREEMAN & SON, Racine, Wis.

IMPROVED FARM IMPLEMENTS!

Non-Explosive Steam Engines, Best Railway and Lever Horse-Powers, Threshing Machines, Straw-Preserving Threshers, La Dow's Disc and Steel Spring Tooth Harrows, Eagle Sulky Horse Rakes, Cultivators, Feed Mills, Feed Steamers, etc., etc. WHEELER & MELICK CO., Albany, N. Y. Established 1830. Send for Illustrated Catalogue.

$1000 REWARD
For any machine hulling and cleaning fit for market as much Clover seed in one DAY as the VICTOR

Double Huller. It has made $100 often IN ONE DAY

VICTOR ILLUSTRATED Pamphlet mailed FREE.
NEWARK MACHINE CO.
NEWARK, O.

DITCHING MACHINE.

FOR UNDERDRAINING.
Will do more Work than 30 Men with Spades.
Guaranteed to give Satisfaction.
Send for Circular. Address
WM. RENNIE, Toronto, Canada,
Sole Manufacturer and Patentee.

Farm Grist Mills
AND CORN SHELLERS.
OVER 25,000 NOW IN USE,
Every Machine is fully Warranted. Price of Mills, $15 to $40. Shellers, $5. Don't buy a **Mill** or **Sheller** until you have seen our terms and Illustrated Circular. Address
LIVINGSTON & CO., Iron Founders, Pittsburgh, Pa.

UNIVERSAL MILL.

The Newell

Pulverizes everything—hard, soft, sticky, and gummy. Grain, Drugs, Chemicals, Clay, Guano, Cotton Seed, Bark, &c., &c. A wonderful machine for grinding Corn, Oats, Feed, &c., &c. Steam Engines and Boilers of all sizes, for Farmers' and Manufacturers' use—at lowest prices. Send for Circular. Address,
34 Cortlandt Street, New York.

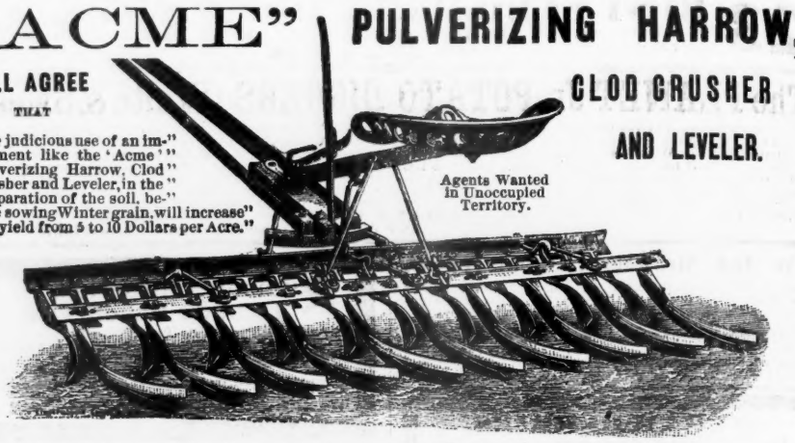
"ACME" PULVERIZING HARROW,

ALL AGREE THAT

"The judicious use of an im-"
"plement like the 'Acme'"
"Pulverizing Harrow, Clod"
"Crusher and Leveler, in the"
"preparation of the soil, be-"
"fore sowing Winter grain, will increase"
"the yield from 5 to 10 Dollars per Acre."

CLOD CRUSHER AND LEVELER.

Agents Wanted in Unoccupied Territory.



IT IS THE ONLY COMPLETE PULVERIZER, CLOD CRUSHER & LEVELER IN THE WORLD.

FAIR PLAY.

If your dealer does not keep the "ACME" for sale, don't let him palm off an inferior tool on you by assuring you that he has something better, but SATISFY YOURSELF by ordering one ON TRIAL. We will send it on trial, and if it does not suit, you may send it back, we paying return freight charges. We don't ask for money or Note until after you have tried it on your own farm.

SEND FOR PAMPHLET CONTAINING HUNDREDS OF TESTIMONIALS FROM 44 DIFFERENT STATES AND TERRITORIES.

NASH & BROTHER,

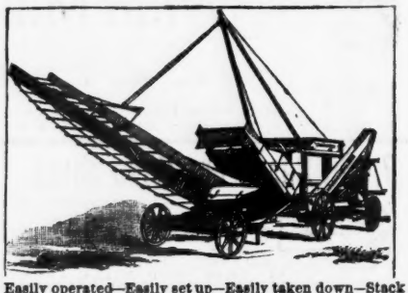
Branch Office: **HARRISBURG, PA.**
Manufactory and Principal Office: **MILLINGTON, NEW JERSEY.**

N. B.—Pamphlet entitled "TILLAGE IS MANURE" will also be sent to parties who NAME THIS PAPER.

J. A. CROSS,

Manufacturer of
HAY CONVEYORS,
For Straight and Curved Track.
ENSILAGE BUCKETS, POST, FLOOR, AND OTHER PULLIES.
Send for Circular and Testimonials. **Fultonville, N.Y.**

The "NEW MASSILLON" THRESHER
With Patent Lateral Moving Stacker.



Easily operated—Easily set up—Easily taken down—Stack crescent shape, affording admirable shelter to stock. Price Low. Send for Catalogue and Price List. Address (*Name this paper.*) **RUSSELL & CO.,** Massillon, Ohio.

Will Dig **FIVE HUNDRED** Bushels a Day. Price, $12.
Manufactured by *Mann & Bartholomew,* Geneva, Kane Co., Ill.
Over one thousand now in use.

Common Sense **POTATO DIGGER,** Improved for 1883.

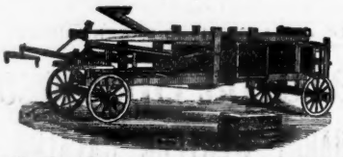
The great success of this famous labor-saving machine has given it a world-wide reputation. With it a boy can do the work of two men. Every machine warranted. Send for circulars and terms. Address
FARMERS M'F'G. CO.,
No. 150 W. 6th St., Cincinnati, O.

KEMP'S MANURE SPREADER,
PULVERIZER and CART COMBINED.

Greatest Agricultural invention of the age. Saves 100 per cent. of labor, and doubles the value of the manure. Spreads evenly all kinds of manure broadcast or in drill, in one-tenth the time required by hand.
Send for Illustrated Catalogue and full particulars to
KEMP & BURPEE M'F'G CO., Syracuse, Onondago Co., N. Y.

HAY PRESSES.

ECONOMY.



ECONOMY.

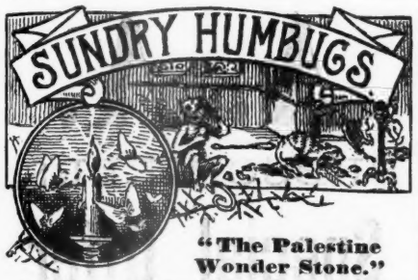
Ertel's Hay Presses excel all others in the market. **Price lower than the lowest.** Send for circular.
GEO. ERTEL & CO., Quincy, Ill.

THE UNION HORSE-POWER
Has the Largest Track Wheels. DOUBLE GEARED. No Rods, Chilled Bearings and LEVEL TREAD

Union Thresher Separator and Cleaner, Premium Farm Grist Mill, Feed Cutters, etc. ☞ Write for Descriptive Catalogue FREE.
W. L. BOYER & BRO., Philadelphia, Pa.

CENTENNIAL AND GRAND PARIS WORLDS FAIR PRIZES AND ALL THE U.S. STATE FAIR PREMIUMS IN 1877 & 1878.
PRICE, $350.
PUTS FROM 10 TO 12 TONS IN A CAR.
PRICE, $300.
REQUIRES LESS HELP.
PRICE, $175.
AND BALES TWICE AS FAST AS ANY OTHER PRESS.
THE BALE IS PATENTED AND SELLS FOR MORE MONEY.
ADDRESS FOR CIRCULAR
P. P. K. DEDERICK, & CO. ALBANY, N.Y.

Pair SHAFT ANTI-RATTLER Springs (warranted) mailed for thirty cents in dimes or stamps. Throw away worthless rubbers, *and relieve your mind.* (Agencies given). **A. G. Morey & Co., La Grange, Ill.** Name this paper.



"The Palestine Wonder Stone."

Several years ago there was a similar nonsensical thing offered, a bit of sandstone impregnated with some perfume. The advertisement of this stone is the most absurd nonsense that we have read in many a day.

A Mutual Relief Association.

A correspondent in Wisconsin sends us the circular of a "Mutual Relief Association" in Iowa, and asks our opinion of the scheme. Sam Weller, we think it was, said that "weal pie was werry good, ven you knew the voman vot made it." This Relief scheme, for all that appears in their circular, may be a useful institution, or it may be a miserable fraud. All depends upon the local reputation of those gentlemen whose names appear as President, etc.

A Co-worker in a Good Cause.

The editor of the "Honesdale (Pa.) Citizen" congratulates us upon the stand we have taken with regard to humbugs, and publishes in its circular to advertising agents the following: "No ads. taken of an illegal or objectionable character, such as Lotteries, 'Sands of Life,' 'Errors of Youth,' 'Manhood Restored,' 'Lydia Pinkham Medicines,' and swindles generally."—"Citizen," we gladly greet you as a co-worker. It may cost you many advertisements, but you will have a clear conscience, and grow in the esteem of your neighbors. May they give you abundant support.

Don't Like the Circulars.

A firm in Kokomo, Ind., has received a batch of circulars from a certain so-called Brooklyn "Publisher," which, as they say, "we do not deem it right and proper to send out."—They forward us the circulars, and we fully concur in their opinion. They can be characterized by but one epithet, filthy in the extreme. Yet we can not fully expose them by giving the name and address of the senders. We can not well warn our readers against the things they offer for sale and keep our pages clean. Persons of "the age of discretion" must see at once, from the titles of books and photos. offered by this miserable Brooklyn concern, what is their animus and their vile intent, so thinly is it veiled.

Notes Under False Pretences.

We have described the various methods by which swindlers obtain notes from farmers, but these chaps by no means confine their attention to one class. A subscriber in New Hampshire writes us that a well dressed, business looking chap appeared among the stone cutters at Concord, in his State. He was taking orders for a Directory, which would gives the names and addresses of all the dealers in granite at the West, and much other important matter relating to the stone business. By his promises, a number were induced to sign orders for the Directory. The Directories never came, but the orders for them turned up in the hands of a third party, in the shape of notes for amounts ranging from $5.00 to $30.00. The injunction, "be careful what you sign," is needed by others as well as farmers.

Another Bogus Life Insurance.

The last case is in Indianapolis, Ind. A company with the high-sounding name of "Washington Mutual Aid and Life Association," had issued a policy to a Mr. Dick for $2,000. Recently Mr. Dick died, and his wife soon followed him, leaving three little children, whose only dependence was the amount of the life insurance. The guardian of the orphans applied to the Secretary of the Association, and was offered $34, all the "assets" of the concern, in settlement of the claim! It was found that in this, as with many other such weak concerns, its whole income was absorbed in paying the salaries of a large corps of officials. When one insures his life, it is all important that he should do it in a company which will pay the amount at his death. There are so many perfectly safe companies, that there is no excuse for making a mistake.

Stamps and Names for a Knife.

"N. M.," Akron, Ohio, writes us that he saw in a professedly religious paper, published in Philadelphia, an advertisement of a New York chap, which, supposing it to be all right, he answered. The advertisement proposed, for five three-cent stamps, and four names, to send "an elegant tortoise-shell handle knife." Mr. M. complied with the conditions, and writes: "This A. M. I received a mere apology for a knife, that is absolutely worthless." He adds that, with the knife, came "a lot of circulars which I threw away, without examination, other than to notice that they advertised the 'Revelation of Wonderful Secrets,' etc." This is

AN OLD TRICK TO GET NAMES.

Names, real addresses, of persons in rural districts especially, are a part of the stock in trade of swindlers. They are bought and sold, and all sorts of devices are resorted to in order to procure them. Give no addresses of your friends and neighbors to strangers, no matter if a knife or any other inducement is offered.

Coloring Photographs.

Parties in Boston and Fall River hold out great inducements to ladies, to make a small fortune by coloring photographs, which they call by the absurd names of "Electographs," "Artographs," etc. Some time ago we advised caution, on the ground that if the real object were to get photographs colored, hundreds right at home would be glad to do the work at a much less price than was offered. A lady writes us from Wakarusa, Kans., that she was living at the time not far from Boston, and, tempted by the offers, and having some knowledge of painting, she sent for two pictures, which came, and also sent money for painting materials, which did not come. She colored the two photographs with paints she had at hand, for which $1 was promised. The pictures were sent by mail; hearing nothing, she wrote, but had no reply. A while after she went to Boston, but searched for the concern in vain; "nobody knew anything about it." The lady says: "I have never heard from my $3.50 for paints, or my two painted pictures." Unusual ways of doing business are always to be regarded with suspicion. Instead of sending photographs to a long distance to be colored, and being at a great expense for circulars, etc., an advertisement of five lines in a Boston paper would bring them all the colorists needed.

Miserable Trash.

A great deal of the stuff advertised by certain parties can only be designated as miserable trash. No doubt they are often advertised in such a manner, as to induce the thoughtless to believe that they are much worse than they really are. Photographs are described in a way to suggest that they may be improper pictures. A small watch chain "charm," with a photograph and magnifier, proposes to show the "Beautiful in Nature Revealed," etc. A "Rolled Gold Ring" is offered for thirteen three-cent stamps and twenty-four names." These chaps are always after names. A knife is offered for sixteen cents and two names. One can learn how "Money can be made without hard work," by investing ten cents. For this sum there will be sent "something that will bring you in more money than you ever made before in your life,"—and much more of a similar character. We have before us a dozen or more of these trashy advertisements, giving half as many addresses, and one might suppose, that a large number were engaged in the business. But the fact is, these are all, or nearly all, one concern with many aliases. Whether they call themselves "Agent's Supply Companies," "Manufacturing Companies," with different prefixes, or by the name of an individual; whether they give their address as New York, Brooklyn, Williamsburgh or, what is the same, Brooklyn, E, D.—they are usually the same, and all to be avoided.

Repel the Advances of Strangers.

Nearly all the larger cities are infested by a gang of rascals, who make it a business of imposing upon visitors from the country. They lay in wait on the streets leading from depots and steamboat landings, and can tell at glance if one is unused to the city. These chaps walk up to a stranger with outstretched hand, address him as Mr. Smith, and ask how he left the folks at Newtown, etc. This is so common in New York, that one of the comic papers recently published a caricature, suggesting the wearing by strangers of a large placard, saying, "I am not Mr. —— of ——. The folks are all well. I do not want to go with you and see you get a prize you have drawn." When a visitor in any city is accosted in this manner, he should pass on, and say nothing. A recently arrived Englishman who was saluted in this manner, foolishly went with a chap to a saloon to "take a drink." He still more foolishly was induced by the confederate loafers in the saloon to make a bet. He more foolishly yet, laid down his money. Before the bet could be decided, the money was grabbed and the loafers scattered. The police have not yet found the money or the one who took it. Perhaps the young Englishman does not deserve much sympathy, but his case illustrates the fact, that the whole object of these newly found friends is to get their victim into some den, where there are confederates, and fleece him.

Medical Institutes—Dispensaries.

A number of letters of inquiry must be answered in general terms. No proper Medical College advertises for patients or to cure any one. The object of a college is to teach, and not to sell medicines. Any "college" that offers to do this is a fraud. The "Institutes" which advertise to treat patients and to sell medicines, so far as we have looked after them, have been found to consist of just one quack doctor, who makes use of this imposing name to further the sale of his alarming books and nostrums. Dispensaries, as the term is used in all large cities, are charitable institutions for the treatment of poor patients. The name is sometimes appropriated by those who propose to treat patients for pay, and who have their own nostrums for sale. To those who inquire about a certain widely advertised Dispensary in a Western city, we would say that our rule about

ADVERTISING DOCTORS

applies here. If the head of the "Dispensary" is, as he claims to be, a medical graduate, he has, by his subsequent course, cut himself off from all fellowship with regular physicians. We would not employ, nor would we advise any one else to entrust his case to a "Doctor" who finds it necessary to advertise extravagantly, in order to get practice, or who makes various secret compounds which he offers to patients at a distance. No matter what claims these Dispensaries may make, our advice is, to let them all alone.

"The Medical Adviser."

The above is the title of a sheet of neat mechanical appearance, about the size of the average country newspaper. It is without any date—year, month, or day, hence we infer that it is "not for a day, but for all time." If we lack the time, we have the place, which it is Omaha, Neb., and the name of the Proprietor is one Fishblatt, "M. D." The name of the Editor is not announced, but from the frequent occurrence of his name in the paper it is, no doubt, the same Fishblatt, who runs a "Medical Dispensary." This sheet furnishes proof of the truth of the axiom that: "a person can do but one thing at a time and do it well." If Fishblatt runs a Dispensary, and treats all the various diseases as set forth in this sheet, we can hardly expect him to be a first-class editor. We read, "we are INVARIABLY (Caps, Mr. Printer, if you please) governed by the following rules": "1st. We furnish all medicines. 2. We only treat such cases of sickness as we have cured." If Fishblatt only treats the cases he has cured, why all this flourish? Of all the cattle in Nebraska, was there ever so fine a specimen of the Irish Bull! One article points out that "the physician should clearly understand three distinct points."

AN EDITOR SHOULD UNDERSTAND,

Well—several things, one of which is the use of the English language. We are inclined to think, that Fishblatt is not much better as a doctor than he is as an editor. He proposes to treat patients by mail, and says: "give your age, hight, weight, color of eyes and hair, sex," etc. Fishblatt claims to "have been the first to find three specific medicines, essentially different in their properties, each one adapted to only one part of the system," etc. We are told that "By the concurrent actions" of these all working on the system at the same time "they will cure disease that cannot be cured by any other medicine." It must be a tough disease that will stand this triangular attack—but how about the patient? There is a great deal of amusing reading in this "Advance," but some of the funniest is not quotable.

MAHOMET GOES TO THE MOUNTAIN.

For fear that the "cases of sickness we have cured" will not come to be treated, Fishblatt goes to the cases, and like a circus poster, his paper announces, that he will exhibit at nearly twenty places on certain dates, and adds: "for further particulars" see—not "small bills"—but "your county papers." When a man claiming to be an "M. D." claims to have "discovered the greatest

cure in the world for weakness of the back and limbs," we are curious to know if he is an "M. D.," and if so, what College made such a mistake as to grant him a diploma. Beware of the travelling Doctor!

Cautionary Signals.

Monarch Lightning Potato Digger.

Eternal vigilance is the price of security. We always endeavor to exercise this vigilance. In the haste of going to press with the August *American Agriculturist*, however, an advertisement of the "Monarch Lightning Potato Digger" was admitted to our columns without receiving the proper scrutiny. We do not say that this Potato Digger is unworthy of consideration, but the fact that it is manufactured by the same parties who make "Lightning Saw," impels us to exclude it from further appearance in our columns, and also to advise every body to carefully investigate the same before investing.

CONTRIBUTIONS SOLICITED.

We extend an invitation to all those who may have anything of interest pertaining to the Farm, Garden, or Household, to forward it to the *Agriculturist*. Descriptions of new farm implements or contrivances which may prove of value and interest to the general public, we shall be glad to receive and pay for. Although you may not be accustomed to drawing, send on such sketches as you are able to make, and our artists will catch the ideas from them and put them into shape.

Our Great Fair List.

Our Fair List (see pages 428-29) this year is by far the most complete thing of the kind ever gotten up. It has been prepared expressly for the *American Agriculturist*, at great labor and expense—involving correspondence with parties in every County, and in every State in the Union. To thousands of individuals it will prove of great value and service, worth far more than the price of many years subscription to the this paper.

Magnetic Insoles.—T. F. Vannedom, Marshfield, Wis., inquires about "Magnetic Insoles," which it is claimed will cure rheumatism, "kidney ache," and various other troubles. Every one who has looked into the medical application of electricity, is aware, that to have any effect, it must pass through the part of the body that is affected. If these insoles have any electrical power at all, it must be confined entirely to the skin of the sole of the foot. That they can cure any trouble in the back, kidneys, or elsewhere, is simply ridiculous.

Australian Notes.—Mr. John L. Dow, of the "Leader," and Mr. T. K. Dow, of the "Australian and Argus," Melbourne, Victoria, long-time friends of the *American Agriculturist*, have made a pleasant call upon us. They are both largely interested in Australian Agriculture, and visit this country on a tour of observation. They have, one or both of them, spent some time among the fruit-growers of California; studied the methods of irrigation in Utah; have been among the herders of Colorado, and are now continuing their tour among Eastern farmers. The agriculture of Australia has much more in common with our own than with that of England, and not only do our implements and machines find favor in that country, but our agricultural journals meet the wants of the colonists much better than do those of the mother country. Messrs. Dow speak encouragingly of the future of Australia. The great exhibition in 1880 brought many strangers, and did much towards supplying the greatest want of the colony—population. Sheep-raising is the leading branch of agriculture in the country, and now that the new method of cooling the meat without ice has been adopted, the shipments of meat will largely increase. Within a few years, between three hundred and four hundred of the best Vermont Merino rams have been imported into the colony, for the purpose of improving its flocks. Wheat of late years has fallen off to about nine bushels to the acre, while the cultivation of Indian corn has much increased. Sugar and cotton are becoming important crops in Queensland, the production of sugar increasing rapidly. The country is well adapted to fruits, and all those of temperate regions succeed, as well as many others belonging to tropical and subtropical countries. The country appears to abound in everything but people, and inducements are offered to immigrants. A settler is entitled to three hundred and twenty acres of land; upon this he pays an annual rent of one shilling per acre, and at the end of twenty years he becomes the owner of the land.

The Crops—Present and Prospective.

The crop year now closing has been marked by material changes in prospects and prices. The delivery of new wheat is beginning, and the fate of the crop of 1883 is largely settled for a considerable portion of the wheat-growing territory, though there is still room for much injury by rust, imperfect filling out, and long, heavy rains, during harvesting and threshing, in the large North-western wheat regions. We can, however, reckon pretty certainly upon a stock of nearly 500,000,000 bushels of wheat, including the reserves still remaining in the graneries of producers, at the grain centers, and in transit... Corn is doing well up to this date, the average condition improving with each general report. Cold, wet weather, and an early frost may possibly yet diminish the yield of sound corn by a hundred million bushels from what is now promised, but it is well advanced in the regions producing the bulk of this crop, and where frosts that will be greatly harmful are unusual. It is pretty safe to reckon upon a stock of 2,000,000,000 bushels, including the reserves, which are still quite large, the comparatively low prices having led many producers to hold on to their stock, while there has been a scarcity of hogs to consume last year's supply.

We may therefore calculate upon having a total of 2,500,000,000 bushels of wheat and corn, to begin the current market year with. There is also a large crop of oats, mainly secured, with a good yield of barley and rye, and in many parts of the country the yield of potatoes is almost unprecedented. With no serious disaster before the middle of September, the country will be literally overflowing with food. Unless pestilence and other causes make a large foreign demand, prices will be moderate, but there is this important fact to be considered: the farmer who has a hundred bushels of wheat, for example, to sell at $1, or even at 75c. or 50c. a bushel, is a great deal better off than if he had hardly enough to supply his own consumption and seed, and none to sell, if the price were $5 a bushel! Applying this illustration to the great mass of the farming population, and taking into account wheat, corn, indeed all crops, we may well say that the farming interests are now highly prosperous. Abundant food at moderate prices means prosperity to all other classes.

WHAT ONE CENT A BUSHEL DOES!

A change up or down of a single cent a bushel in the price of any leading product may seem a small matter, but this trifling variation in the price of the current stock of wheat and corn, above referred to, means a difference of twenty-five million dollars ($25,000,000) to the producers, or the consumers, or partly to both. In this view of the subject, the ups and downs in the grain and provision markets during the market year we are now entering upon, will be matters of great interest to everybody the country over. Limiting it to our two great cereals, only four cents a bushel more for wheat and corn realized by the farmers, means an increased ability of $100,000,000—one hundred million dollars—to pay for merchandise, for manufactures, for visiting, and thus for travelling on our railroads, for paying off mortgages and other debts, etc., etc.

New Farm Implements and Appliances.

A New Meat Chopper.

The new meat chopper, of which we present an illustration, claims to chop meat "finer, faster, and nicer than

any others in the world." We have given this meat chopper a thorough trial, with most satisfactory results.

Keeping Cider Sweet.

We know of no better preparation for preventing fermentation in Cider than the Zinsser Preserving Powder, heretofore favorably spoken of by us, and warmly recommended by those who are using it. One of the leading contributors of the *American Agriculturist* informs us that he likewise employs this powder in preserving canned fruits, as well as cider.

A. A.

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N. B., 1st.—Any person sending more than **one New** subscriber, as above, will be presented with one book for each **New** subscriber he sends.

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Important Publishers' Announcement.

At no period since its organization have the Company publishing the *American Agriculturist* and the *American Agriculturist* itself, been in so prosperous a condition as at the present time. The great improvements of the paper, and the largely increasing advertising patronage, speak for themselves, while the sales of our publications, nearly doubled within a few years, tell their own story.

Notwithstanding the great success and circulation of the *American Agriculturist*, we propose to make still further improvements, and to extend the circulation of the paper over the entire Western country. To this end we are enlarging our staff of editorial writers, and perfecting arrangements for increasing the circulation, so that everybody west of Chicago will not only feel that the paper is adapted to their wants, but that it can be had without difficulty. We have secured the services of an editor beyond the Missouri, in the person of Prof. S. R. Thompson, Dean and Professor of Agriculture of the Nebraska State Agricultural College, — thoroughly familiar with all the wants and requirements of the great West. Many years of residence and agricultural experience, have admirably fitted him to give just such counsel and advice as our Western readers may require.

Other announcements of new writers will be made in the October issue. All of our subscribers and others, who may desire to engage in the work of increasing our subscription list, will please immediately address us. The campaign is now opening, and we hope to enlist thousands of co-workers in every State in the Union. We greet you.

Middle Kansas.—Mr. H. C. McCarthy, one of our old Kansas subscribers, living at Wreford, Davis Co., informs us, in a personal visit, that the crops all through that portion of Kansas, are looking remarkably well, with the exception of corn, which is about a month behindhand. Notwithstanding its backwardness, however, it promises a full yield. The farmers generally through Kansas are feeling well at the prospect of an abundant crop. Many of those going to Kansas from the older States, are buying improved property, as the best of the wild land is generally taken. In Davis County, every acre of Government and R. R. land has been taken. The wheat crop has been unusually good in all this section. Mr. McCarthy mentioned one farm of over two hundred acres of wheat, which yielded fully thirty-eight bushels to the acre. Land is steadily advancing in value, and improved farms are now selling at from twenty-five to thirty dollars per acre, and wild land in counties further West, for grazing purposes, is held by the Railroads at from four to six dollars per acre. Sheep have proved a success in this portion of Kansas; whereas, the prevailing impression ten years ago was that they could not be successfully raised there, herds of sheep are now scattered all the way from Salina to Denver. A few years ago it was thought that fruit could not be raised to advantage in Kansas; now, however, in this portion of the State, all fruits have proved successful, especially apples. The apple crop promises to be very heavy this year. Last winter the Kansas Legislature passed an act, making the uniform rates of fare on all rail roads of the State three cents per mile; this decided reduction of fare has proved gratifying to the farmers, enabling them to travel back and forth. There has likewise been a reduction in freights east to Chicago, which has also proved very advantageous to the farmers.

STRAWBERRIES

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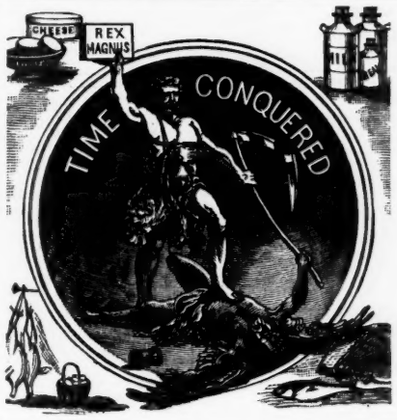

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State, County and other Fairs in 1883.

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STATE FAIRS.

Arkansas	Little Rock	Oct. 16-20
California	Sacramento	Sept. 10-15
Colorado	Denver	July 17-Sept. 30
Connecticut	Meri en	Sept. 18-21
Delaware	Dover	Sept. 25-29
Illinois	Chicago	Sept. 24-29
Indiana	Indianapolis	Sept. 24-29
Iowa	Des Moines	Aug. 31-Sept. 8
Kansas	Topeka	Sept. 10-15
Kentucky	Lexington	Aug. 28-Sep. 1
Maine	Lewiston	Sept. 18-21
Maryland	Baltimore	Oct. 15-20
Michigan	Detroit	Sept. 17-21
Minnesota	Owatonna	Sept. 3- 8
Mississippi	Meridian	Oct. 29-Nov. 3
Missouri	St. Louis	Oct. 1- 6
Montana	Helena	Sept. 3- 8
Nebraska	Omaha	Sept. 10-15
New Hampshire	Dover	Sept. 11-14
New Jersey	Waverly	Sept. 17-21
New York	Rochester	Sept. 10-15
North Carolina	Raleigh	Oct. 15-20
Ohio	Columbus	Sept. 3- 7
Pennsylvania	Philadelphia	Oct.
Rhode Island	Cranston	Sept. 25-28
South Carolina	Columbia	Nov. 13-16
Texas	Austin	Oct. 16-20
Vermont	Burlington	Sept. 10-14
Virginia	Richmond	Oct. 30-Nov. 3
West Virginia	Wheeling	Sept. 10-15
Wisconsin	Madison	Sept. 10-14

Industrial and District Fairs.

CONNECTICUT.

Chester	Chester	Sept. 26
Clinton	Clinton	Oct. 3
Danbury	Danbury	Oct. 1- 6
Farmington Vall'y.	Canton	Sept. 25-28
Guilford	Guilford	Sept. 28
Milford & Orange	Milford	Sept. 18-19
New Milford	New Milford	Sept. 27-29
Southington	Southington	Oct. 9-11
Union	Huntington	Sept. 19-21
Watertown	Watertown	Sept. 25-27
Westbrook	Westbrook	Oct. 10
Willimantic Farmers' Club	Willimantic	Oct. 2- 4
Woodbridge and Bethany	Woodbridge	Oct. 3- 4
Woodbury	Woodbury	Sept. 12-13
Woodstock	Woodstock	Sept. 25-27

ILLINOIS.

Avon	Avon	Sept. 18-21
Bushnell	Bushnell	Oct. 3- 5
Camp Point	Camp Point	Sept. 3- 7
Carbondale	Carbondale	Oct. 8-12
Centralia	Centralia	Oct. 17-20
Farmers' and Mechanics' Instit'e.	Danville	Sept. 25-28
Fat Stock Exhi'n.	Chicago	Nov. 14-22
Harrisburg	Harrisburg	Oct. 2- 5
Quincy Exposition.	Quincy	Sept. 10-15
Southern Ill.	Anna	Aug. 28-Sept. 1

INDIANA.

Bridgeton Union	Bridgeton	Aug. 27-Sept. 1
Cambridge City	Cambr'ge City	Sept. 4- 7
Dunkirk Uni'n A'n.	Dunkirk	Sept. 4- 7
Edinburg	Edinburg	Sept. 18-22
Fountain, Vermillion, & Warren Co's.	Covington	Sept. 18-21
Henry, Madison, & Del. Ag'l Ass'n.	Middletown	Aug. 21-24
Henry, Rush, and Hancock	Knightstown	Aug. 28-31
Lawrence	Lawrence	Sept. 11-15
Logootee	Logootee	Aug. 15-17
New Ross	New Ross	Aug. 15-17
No. Indiana	Ft. Wayne	Sept. 10-15
No. East. Indiana.	Waterloo	Oct. 1- 5
Orleans	Orleans	Sept. 26-29
Plainfield Agricul'l and Horticul'l.	Plainfield	Oct. 13-14
Remington	Remington	Aug. 28-31
Union City Agric'l and Mechanical.	Union City	Sept. 18-21
Wayne, Henry, and Randolph Co's.	Dalton	Sept. 4- 7

IOWA.

Agency City	Agency City	Oct. 2- 5
Boone	Boone	Sept. 18-21
Creston Ag'l Ass'n.	Creston	Sept. 17-21
Dist. at Wt. Point.	West Point	Sept. 5- 7
Dist. at Mt. Joy	Mt. Joy	Sept. 11-14
Grand River Val'y.	Lineville	Sept. 25-28
Maple River Val'y.	Battle Creek	Sept. 21-22
Moulton	Moulton	Sept. 28-Oct. 1
North-west Iowa.	Sheldon	Sept. 12-14
Strawberry Point.	Strawberry P't.	Sept. 18-20
Union	La Porte City	Sept. 11-13
Wt. Liberty	Wt. Liberty	Sept. 18-20

KANSAS.

Ark. Val. Agr'l S'y.	Wichita	Sept. 3- 6
Cen. Kan. Agr'l S'y.	Junction City	Oct. 4- 6
La Cygne	La Cygne	Sept. 18-21
McPherson Park Association	McPherson	Sept. 25-27
Morris Co. Exposition Company	Council Grove	Oct. 2- 5
Neosho Falls	Neosho Falls	Sept. 3- 8
Spillman Valley Farmers' Club	Ingalls	Oct. 20-21
Western Nat'l Fair Association	Lawrence	Sept. 3- 8

KENTUCKY.

Southern Expos'n.	Louisville	Aug. 1-Nov. 9

MAINE.

Knox, North	Hope Corner	Oct. 9-11
Oxford, West	Fryeburg	Oct. 9-11

MASSACHUSETTS.

Amesbury and Salisbury	Newburyport	Oct. 2- 6
Deerfield Valley	Charlemont	Sept. 20-21
Hampden, East	Palmer	Sept. 18-19
Hampshire, Franklin, etc.	Northampton	Oct. 3- 5
Highland	Middlefield	Sept. 13-14
Hingham	Hingham	Sept. 25-26
Hoosac Valley	North Adams	Sept. 18-19
Housatonic	Gt. Barrington	Sept. 26-28
Marshfield	Marshfield	Sept. 12-14
Martha's Vineyard.	West Tisbury	Oct. 2- 3
Mass. Hort'l Soc'y.	Boston	Sept. 18-21
Middlesex, North.	Lowell	Sept. 25-26
Middlesex, South.	Framingham	Sept. 18-19
Union	Blandford	Sept. 19-21
Worcester, North.	Fitchburg	Sept. 25-26
Worcester, N. west.	Athol	Oct. 2- 3
Worcester, West.	Barre	Sept. 27-28
Worcester, South.	Sturbridge	Sept. 13-14
Worcester, S. east.	Milford	Sept. 25-27

MICHIGAN.

Armada Society	Armada	Oct. 3- 5
Caro	Caro	Oct. 2- 5
State Hort'l Soc'y.	Detroit	Sept. 17-21

MISSISSIPPI.

Mississippi Exp'n.	Aberdeen	Oct. 22-27

MISSOURI.

Agr'l and Mec Fair.	Newark	Sept. 11-15
Brownsville	Brownsville	Aug. 20-24
La Grange	La Grange	Sept. 25-28
Shelbina	Shelbina	Aug. 4- 7
Tipton	Tipton	Sept. 11-14

NEW HAMPSHIRE.

New England Fair.	Manchester	Sept. 4- 7
Oak Park	Greenfield	Sept. 18-19

NEW YORK.

American Instit'e.	N. Y. City	Oct. 3-Dec. 1
Carthage Union	Carthage	Sept. 25-27
Chatham	Chatham	Sept. 18-20
Grand Agr'l Implement Exposition.	Gouverneur	Sept. 4- 6
Moravia Union	Moravia	Sept. 18-20
Rushville Union	Rushville	Oct. 5- 6
Sinclairv'le Union.	Sinclair	Sept. 11-13

NORTH CAROLINA.

Fruit-Grow's Fair.	Wilmington	Aug. 22-23

OHIO.

Bantam	Bantam	Sept. 25-28
Blanchester	Blanchester	Aug. 27-29
Central Ohio	Mechanicsburg	Sept. 11-14
Cincinnati Indus'l.	Cincinnati	Sept. 5-Oct. 6
Ripley	Ripley	Sept. 25-28
Sabina	Sabina	Aug. 20-23
Tri-State	Toledo	Sept. 10-15

PENNSYLVANIA.

Chartier's Valley.	Cannonsburg	Aug. 21-23
Conneautville	Conneautville	Oct. 3- 5
Dayton	Dayton	Sept. 25-28
Doylestown	Doylestown	Oct. 2- 5
Farmer's and Mechanic's Inst.	Easton	Sept. 11-14
Gratz Driv'g Park	Gratz	Sept. 18-21
Harford	Harford	Sept. 26-27
Keystone Fair	Kutztown	Sept. 18-21
Keystone & Buckeye.	Sharon	Sept. 12-15
Leechburg	Leechburg	Oct. 2- 5
Mercer	Mercer	Sept. 5- 7
Northwestern Pa.	Corry	Oct. 3- 5
Oil Creek Valley.	Titusville	Sept. 25-27
Oxford	Oxford	Sept. 26-28
Penn. Hort. Soc'y.	Philadelphia	Sept. 11-14
Petroleum	Parkers' Land'g.	Sept. 25-28
Punxsutawney	Punxsutawney	Sept. 24-28
Ringtown	Ringtown	Sept. 18-21
Tri-State	Williams Grove.	Aug. 20-26
Troy	Troy	Sept. 25-28
Union City	Union City	Sept. 18-21
Washington Union Burgettstown.		Oct. 2- 4
Wellsborough	Wellsborough	Sept. 19-22

RHODE ISLAND.

Woonsocket	Woonsocket	Sept. 18-20

TENNESSEE.

Farmington	Farmington	Sept. 18-20
Union City	Union City	Oct. 2- 6

TEXAS.

Pom. & Hort. Soc.	Dallas	Aug. 9-10

VERMONT.

Dog River Valley.	Northfield	Sept. 25-27
Poultney	Poultney	Sept. 18-20
Union Exhibit. Soc.	St. Albans	Sept. 5- 7
White River	Bethel	Sept. 18-20

WISCONSIN.

Lodi Union	Lodi	Sept. 26-29
S. W. Wisconsin Industrial Ass'n	Mineral Point	Sept. 4- 7

COUNTY FAIRS.

ALABAMA.

Greene	Eutaw	Nov. 6- 9
Wilcox	Camden	Oct. 30-Nov. 2

ARKANSAS.

Drew	Monticello	Oct. 10-12
Independence	Batesville	Oct. 10-12
Jefferson	Pine Bluff	
Sebastian	Fort Smith	Oct. 9-13

CALIFORNIA.

Marin	Petaluma	Aug. 25-30
Nevada	Grass Valley	Sept. 4- 8
Sacramento	Sacramento	Sept. 3- 8

COLORADO.

Boulder	Boulder	Sept. 26-29
Larimer	Fort Collins	Oct. 2- 5

CONNECTICUT.

Fairfield	Norwalk	Sept. 11-14
Litchfield	No fair this year.	
Middlesex	No fair this year.	
New London	Norwich	Sept. 25-27
Tolland	Rockville	Sept.
Tolland, East	Stafford Springs.	Oct. 10-11
Windham	Brooklyn	Sept. 18-20

DAKOTA.

Armstrong	Milltown	Sept. 1- 3
Brulé	Chamberlain	Sept. 20-22
Hanson	Rockport	
Kingsbury	De Smet	Sept. 26-28
Minnehaha	Sioux Falls	Sept. 10-14
Moody.	Flandrau	Sept. 19-21

DELAWARE.

New Castle	Middletown	Sept. 18-20

GEORGIA.

Burke	Waynesboro	Nov. 6- 9

ILLINOIS.

Adams	Camp Point	Sept. 3- 7
Boone	Belvidere	Sept. 4- 7
Brown	Mt. Sterling	Aug. 28-31
Bureau	Princeton	Sept. 11-14
Carroll	Mt. Carroll	Sept. 11-14
Cass	Virginia	Aug. 21-24
Champaign	Champaign	Aug. 28-31
Christian	No fair this year.	
Clark	No fair this year.	
Coles	Charleston	Sept. 18-22
Crawford	Robinson	Oct. 2- 5
Cumberland	Toledo	Oct. 2- 4
DeKalb	Sycamore	Sept. 18-21
DeWitt	Clinton	Aug. 21-24
Douglas	Tuscola	Aug. 21-24
DuPage	Wheaton	Sept. 11-13
Edgar	Paris	Sept. 3- 7
Edwards	Albion	Oct. 2- 5
Fayette	Vandalia	Sept. 26-28
Ford	No fair this year.	
Franklin	Benton	Oct. 16-19
Fulton	Canton	Sept. 18-21
Gallatin	Shawneetown	Aug. 28-31
Greene	Carrollton	Oct. 16-19
Grundy	No fair this year.	
Hamilton	McLeansboro	Sept. 18-22
Hancock	Warsaw	Sept. 10-14
Henderson	Biggsville	Sept. 11-14
Henry	Cambridge	Sept. 3- 7
Jackson	Murphysboro	Oct. 15-19
Jasper	Newton	Sept. 25-28
Jefferson	Mt. Vernon	Oct. 9-12
Jersey	Jerseyville	Oct. 9-13
Kane	No fair this year.	
Kankakee	Kankakee	Sept. 11-14
Kendall	Bristol	Sept. 11-14
Knox	Knoxville	Sept. 3- 7
Lawrence	No fair this year.	
Lee	No fair this year.	
Livingston	No fair this year.	
Logan	Lincoln	Aug. 27-31
McDonough	Macomb	Sept. 4- 7
McLean	No fair this year.	
Macon	Decatur	Sept. 4- 7
Macoupin	Carlinville	Sept. 4- 7
Madison	No fair this year.	
Marion	Salem	Oct. 23-26
Marshall	Wenona	Sept. 17-21
Massac	Metropolis	Oct. 10-13
Menard	No fair this year.	
Mercer	Aledo	Sept. 18-21
Monroe	No fair this year.	
Montgomery	Hillsboro	Sept. 25-28
Morgan	Jacksonville	Aug. 28-Sept. 1
Moultrie	Sullivan	Sept. 4- 7
Ogle	Oregon	Sept. 18-21
Peoria	Peoria	Sept. 4-14
Perry	Pinckneyville	Oct. 2- 5
Piatt	Monticello	Aug. 13-17
Pulaski	No fair this year.	
Putnam	No fair this year.	
Randolph	Sparta	Sept. 26-28
Randolph	Chester	Oct. 16-19
Richland	Olney	Sept. 19-22
St. Clair	Belleville	Oct. 9-12
Saline	Eldorado	Sept. 25-29
Sangamon	Springfield	Sept. 10-15
Schuyler	Rushville	Sept. 11-14
Scott	No fair this year.	
Shelby	Shelbyville	Sept. 25-29
Stark	Toulon	Sept. 18-21
Stephenson	No fair this year.	
Tazewell	Delevan	Sept. 17-22
Union	Jonesboro	Sept. 11-14
Vermilion	Hoopeston	Aug. 27-31
Warren	Monmouth	Sept. 4- 7
Wayne	No fair this year.	
White	Carmi	Sept. 4- 8
Whiteside	Morrison	Sept. 4- 7
Will	No fair this year.	
Williamson	Marion	Sept. 25-28
Winnebago	Rockford	Sept. 10-14

INDIANA.

Adams	No fair this year.	
Bartholomew	Columbus	Aug. 27-Sep. 1
Blackford	Hartford City	Sept. 18-21
Boone	Lebanon	Aug. 20-24
Cass	Logansport	Sept. 18-22
Clay	Brazil	Sept. 10-14
Clinton	Frankfort	Aug. 27-Sep. 1
Daviess	No fair this year.	
Dearborn	Lawrenceburgh	Aug. 21-25
Decatur	Greensburg	Aug. 21-25
Delaware	Muncie	Aug. 14-18
Dubois	No fair this year.	
Elkhart	Goshen	Oct. 9-12
Fayette	Connersville	Sept. 18-21
Floyd	No fair this year.	
Fulton	Rochester	Oct. 3- 6
Gibson	Princeton	Sept. 17-22
Grant	Marion	Sept. 4- 7
Greene	Linton	Oct. 1- 5
Hamilton	Noblesville	Aug. 27-31
Harrison	Corydon	Sept. 3- 7
Hendricks	No fair this year.	
Henry	New Castle	Sept. 18-22
Howard	Kokomo	Sept. 4- 8
Huntington	Huntington	Sept. 13-21
Jackson	Brownstown	Sept. 10-14
Jasper	Rensselaer	Sept. 11-13
Jay	Portland	Oct. 2- 5
Jefferson	Madison	Sept. 18-20
Jennings	North Vernon	Aug. 7-10
Johnson	No fair this year.	
Knox	Vincennes	Oct. 8-13
Kosciusko	Warsaw	Sept. 18-21
La Grange	La Grange	Sept. 26-29
Lake	Crown Point	Sept. 2- 5
La Porte	La Porte	Sept. 18-21
Madison	Anderson	Sept. 4- 7
Marshall	Plymouth	Sept. 25-28
Miami	Peru	Sept. 11-14
Monroe	No fair this year.	
Montgomery	Crawfordsville	Sept. 10-15
Newton	Morocco	Sept. 4- 7
Noble	Ligonier	Oct. 17-20
Orange	Paoli	Sept. 19-22
Owen	No fair this year.	
Parke	Rockville	Aug. 20-26
Perry	Rome	Oct. 1- 6
Pike	Petersburg	Sept. 3- 7
Porter	Valparaiso	Sept. 25-28
Posey	New Harmony	Sept. 11-14
Pulaski	Winamac	Sept. 25-28
Putnam	No fair this year.	
Randolph	Winchester	Sept. 11-14
Ripley	Osgood	Sept. 14-17
Rush	Rushville	Sept. 11-14
St. Joseph	South Bend	Oct. 1- 5
Scott	No fair this year.	
Shelby	Shelbyville	Sept. 4- 8
Spencer	No fair this year.	
Starke	No fair this year.	
Steuben	Angola	Oct. 9-12
Sullivan	No fair this year.	
Switzerl'd & Ohio.	East Enterprise	Sept. 11-14
Tippecanoe	Lafayette	Sept. 3- 8
Tipton	Tipton	Sept. 18-22
Union	No fair this year.	
Vanderburgh	No fair this year.	
Vigo	Terre Haute	Sept. 3- 8
Wabash	Wabash	Sept. 11-14
Warren	West Lebanon	Sept. 11-14
Warrick	Booneville	Oct. 1- 6
Washington	Salem	Sept. 17-21
Wells	Bluffton	Sept. 4- 7
White	No fair this year.	
Whitley	Columbia City	Oct. 2- 5

IOWA.

Allamakee	Waukon	Sept. 18-20
Appanoose	Centerville	Sept. 11-14
Audubon	Audubon	Sept. 11-13
Benton	Vinton	Sept. 11-14
Black Hawk	No fair this year.	
Boone	Ogden	Sept. 12-15
Bremer	No fair this year.	
Buchanan	Independence	Sept. 25-28
Buena Vista	No fair this year.	
Butler	Shell Rock	Sept.
Carroll	No fair this year.	
Cass	Atlantic	Sept. 18-21
Cedar	Tipton	Sept. 5- 7
Cerro Gordo	Mason City	Sept. 10-12
Cherokee	No fair this year.	
Chickasaw	New Hampton	Sept. 12-14
Clarke	Osceola	Sept. 25-28
Clay	Spencer	Sept. 19-21
Clayton	National	Sept. 18-20
Clinton	De Witt	Sept. 4- 7
Crawford	Denison	Sept. 11-13
Dallas	Adel	Sept. 25-28
Davis	Bloomfield	Sept. 18-20
Decatur	Leon	Oct. 2- 5
Delaware	Manchester	Sept. 11-14
Des Moines	Burlington	Sept. 17-21
Dubuque	No fair this year.	
Fayette	West Union	Sept. 25-28
Floyd	Charles City	Sept. 12-14
Franklin	Hampton	Sept. 12-14
Greene	Jefferson	Sept. 20-22
Grundy	Grundy Centre	Sept. 19-21
Guthrie	Guthrie Centre	Sept. 25-28
Hamilton	Webster City	Sept. 11-13
Hancock	Britt	Sept. 18-20
Hardin	Eldora	Sept. 11-14
Henry	Mt. Pleasant	Sept. 25-28
Howard	Cresco	Sept. 5- 7
Humboldt	Humboldt	Sept. 12-14
Ida	Ida Grove	Sept. 18-15
Iowa	Marengo	Sept. 19-21
Jackson	Maquoketa	Sept. 11-14
Jasper	Newton	Sept. 11-14
Jefferson	Fairfield	Sept. 11-13
Johnson	Iowa City	Sept. 11-14
Jones	Monticello	Sept. 3- 7
Keokuk	Sigourney	Aug. 21-24
Lee	Donnellson	Sept. 11-14
Linn	Cedar Rapids	Sept. 11-14
Louisa	Wapello	Sept. 25-28
Lucas	Charlton	Sept. 11-14
Lyon	No fair this year.	
Madison	Winterset	Aug. 28-31
Mahaska	Oskaloosa	Aug. 27-31
Marion	Knoxville	Aug. 21-24
Marshall	Marshalltown	Aug. 28-31
Mills	Glenwood	Sept. 18-21
Mitchell	Osage	Sept. 19-21
Monona	Onawa	Sept. 26-28
Monroe	Albia	Sept. 11-14
Montgomery	Red Oak	Aug. 28-31
Muscatine	Muscatine	Sept. 11-13
Page	Clarinda	Sept. 4- 8
Palo Alto	Emmetsburg	Sept. 27-29
Plymouth	Le Mars	Sept. 19-22
Pottawattamie	Council Bluffs	Sept. 10-14
Poweshiek	Malcom	Sept. 11-13
Ringgold	Mt. Ayr	Sept. 11-14
Sac	Sac City	Sept. 18-20
Scott	Davenport	Sept. 3- 6
Shelby	Harlan	Sept. 26-29
Story	Nevada	Sept. 19-21
Tama	Tama City	Sept. 18-21
Taylor	Bedford	Sept. 11-16
Union	Afton	Sept. 19-22
Van Buren	Keosauqua	Sept. 11-14
Wapello	Ottumwa	Aug. 21-24
Warren	Indianola	Aug. 28-30
Washington	Washington	Sept. 11-13
Wayne	Corydon	Sept. 11-14
Webster	No fair this year.	
Winnebago	No fair this year.	
Winneshiek	Decorah	Sept. 11-15
Worth	Northwood	Sept.
Wright	No fair this year.	

KANSAS.

Allen	No fair this year.	
Anderson	Garnett	Sept. 19-21
Barton	No fair this year.	
Bourbon	Fort Scott	Oct. 2- 5
Brown	Hiawatha	Sept. 19-22
Butler	El Dorado	Sept. 25-28
Chase	Cottonw'd Falls.	Sept. 25-28
Chautauqua	No fair this year.	
Cherokee	Columbus	Sept. 18-20

Cloud	Concordia	Oct. 1- 6
Coffey	Burlington	Sept. 18-21
Cowley	Winfield	Sept. 25-28
Crawford	Girard	Sept. 25-28
Dickinson	Abilene	Sept. 25-28
Doniphan	Troy	Sept. 25-28
Elk	Howard	Sept. 28-30
Ellis	Hays City	Sept. 26-28
Franklin	Ottawa	Sept. 25-29
Graham	No fair this year.	
Greenwood	Eureka	Sept. 18-21
Harvey	Newton	Sept. 3- 5
Hodgmans	No fair this year.	
Jackson	No fair this year.	
Jefferson	Oskaloosa	Oct. 2- 4
Jewell	Mankato	Sept. 11-13
Labette	Oswego	Sept. 25-28
Linn	Mound City	Sept. 24-28
McPherson	McPherson	Sept. 25-28
Marion	Peabody	Aug. 29-31
Marshall	Marysville	Sept. 25-27
Miami	Paola	Sept. 26-29
Mitchell	Beloit	Sept. 25-28
Montgomery	Independence	Sept. 26-29
Morris	Parkersville	Aug. 28-30
Nemaha	Seneca	Aug. 28-31
Norton	No fair this year.	
Ottawa	Minneapolis	Oct. 2- 5
Pawnee	Larned	Sept. 3- 5
Phillips	Phillipsburg	Sept. 17-19
Rice	Lyons	Sept. 25-27
Riley	Manhattan	Sept. 25-28
Saline	Salina	Sept. 25-28
Shawnee	No fair this year.	
Sheridan	No fair this year.	
Smith	Smith Centre	Sept. 18-20
Sumner	Wellington	Oct. 10-13
Washington	Washington	Sept. 11-14
Wyandotte	No fair this year.	

KENTUCKY.

Anderson	Lawrenceburg	Aug. 21-23
Barren	Glasgow	Oct. 3- 6
Bath	Sharpsburg	Aug. 7-10
Bourbon	Paris	Sept. 4- 8
Boyd	Catlettsburg	Oct. 3- 5
Boyle	Danville	Aug. 7-10
Bracken	Brookville	Oct. 10-14
Campbell	Newport	Aug. 28-Sept. 1
Christian	Hopkinsville	Oct. 3- 6
Crittenden	No fair this year.	
Daviess	Owensboro	Oct. 10-13
Estill	No fair this year.	
Fayette	Lexington	Aug. 28-Sept. 1
Floyd	No fair this year.	
Gallatin	No fair this year.	
Green	No fair this year.	
Harrison	Cynthiana	Aug. 21-24
Hart	Munfordville	Oct. 10-13
Henderson	Henderson	Oct. 3- 6
Hickman	No fair this year.	
Jefferson	Louisville	Oct. 2- 5
Lewis	No fair this year.	
Lincoln	Hustonville	July 25-27
McLean	Calhoun	Oct. 18-20
Madison	Richmond	Aug. 14-18
Mason	Germantown	Oct. 11-13
Mercer	Harrodsburgh	July 31-Aug. 3
Montgomery	Mt. Sterling	July 31-Aug. 2
Morgan	No fair this year.	
Ohio	Hartford	Oct. 8- 6
Owen	New Liberty	Oct. 2- 6
Pendleton	Falmouth	Sept. 11-15
Powell	No fair this year.	
Shelby	Shelbyville	Aug. 21-25
Simpson	Franklin	Aug. 30-Sept. 1
Warren	Bowling Green	Sept. 5- 8
Washington	Springfield	Aug. 28-31

MAINE.

Aroostook	Houlton	Sept. 28-29
Cumberland	P rland	Sept. 11-14
Franklin	Farmington	Oct. 9-11
Hancock	No fair this year.	
Kennebec	Readfield	Oct, 2- 4
Knox	Rockland	Oct. 2- 4
Lincoln	Damariscotta	Oct. 2- 4
Oxford	Paris	Oct. 2- 4
Penobscot, West	Exeter	Sept. 25-26
Sagadahoc	Topsham	Oct. 9-11

MARYLAND.

Alleghany	No fair this year.	
Anne Arundel	No fair this year.	
Baltimore	Timonium	Sept. 4- 7
Carroll	No fair this year.	
Cecil	Elkton	Oct, 2- 5
Dorchester	No fair this year.	
Frederick	Frederick	Oct. 9-12
Harford	Bel Air	Oct. 9-12
Howard	No fair this year.	
Kent	Worton Station	Sept. 11-13
Montgomery	Rockville	Oct. 17-19
Queen Anne	No fair this year.	
Talbot	No fair this year.	
Washington	Hagerstown	Oct. 16-19
Wicomico	No fair this year.	
Worcester	No fair this year.	

MASSACHUSETTS,

Barnstable	Barnstable	Sept. 25-26
Berkshire	Pittsfield	Oct. 2- 4
Bristol	Taunton	Sept. 25-27
Essex	Haverhill	Sept. 25-26
Franklin	Greenfield	Sept. 27-29
Hampden	Chicopee	Sept. 25-27
Hampshire	Amherst	Sept. 20-21
Middlesex	Concord	Sept. 25-27
Nantucket	Nantucket	Sept. 5- 6
Plymouth	Bridgewater	Sept. 19-21
Worcester	Worcester	Sept. 20-21

MICHIGAN.

Allegan	Allegan	Oct. 9-12
Alpena	Alpena	Oct. 11-12
Antrim	Bellaire	Oct. 3- 5
Barry	Hastings	Oct. 2- 5
Bay	No fair this year.	
Cass	Cassopolis	Sept. 19-21
Clare	Clare	Oct. 3- 5
Clinton	St. Johns	Oct. 9-12
Eaton	Charlotte	Sept. 25-28
Genesee	Flint	Oct. 2- 5
Grand Traverse	Traverse City	Sept. 18-21
Hillsdale	Hillsdale	Oct. 2 5
Ingham	Mason	Sept. 26-28
Ionia	Ionia	Oct. 2- 5
Isabella	Mt. Pleasant	Oct. 2- 5
Jackson	Jackson	Sept. 25-28
Kalamazoo	No fair this year.	
Kalkaska	Kalkaska	Sept. 28-29
Kent	Grand Rapids	Sept. 24-29
Lenawee	Adrian	Sept. 17-21
Livingston	Howell	Sept. 26-27
Macomb	Mt. Clemens	Sept. 25-28
Marquette	Marquette	Sept. 26-28
Mecosta	No fair this year.	
Menominee	No fair this year.	
Missaukee	Lake City	Oct. 3- 4
Montcalm	Stanton	Oct. 9-11
Muskegon	No fair this year.	
Oceana	Hart	Oct. 2- 5
Roscommon	No fair this year.	
Tuscola	Vassar	Oct. 2- 5
Washtenaw	Ann Arbor	Oct. 2- 5

MINNESOTA.

Brown	New Ulm	Sept. 15-17
Chisago	No Branch Stat'n	Oct. 2- 5
Cottonwood	Windom	Sept. 18-20
Fillmore	Preston	Sept. 25-27
Freeborn	Bath	Oct. 9-11
Hennepin	Minneapolis	Aug-27-Sept.1
Morrison	Little Falls	Sept. 11-13
Olmstead	Rochester	Sept. 10-15
Polk	Crookston	Sept. 11-14
Renville	Bird Island	Oct.
Watowan	Madelia	Sept. 19-21
Yellow Medicine	Granite Falls	Sept. 5- 7

MISSISSIPPI.

Jefferson	Fayette	Oct. 16-18
Monroe	Aberdeen	Oct. 23-28

MISSOURI.

Atchison	Taxkio	Sept. 4- 8
Audrain	Mexico	Sept. 18-22
Bates	No fair this year.	
Boone	Columbia	Sept. 25-29
Buchanan	St. Joseph	Sept. 3- 8
Callaway	Fulton	Aug. 21-24
Camden	No fair this year.	
Cape Girardeau	Cape Girardeau	Oct. 9-14
Carter	No fair this year.	
Cass	Pleasant Hill	Sept. 9-12
Charlton	Keytesville	Oct, 2- 6
Clarke	Kahoka	Sept, 4- 7
Cole	Jefferson City	Aug, 14-18
Daviess	Jamesport	Sept. 4- 7
Franklin	Washington	Sept. 12-14
Gasconade	Hermann	Sept. 7- 8
Gentry	Albany	Sept. 24-29
Grundy	Trenton	Sept. 11-14
Harrison	Bethany	Sept. 11-14
Holt	Maitland	Sept. 10-13
Knox	Edina	Sept. 4- 8
La Fayette	Higginsville	Aug. 28-Sept. 1
Lawrence	Mount Vernon	Oct. 9-12
Lewis	Williamstown	Sept. 17-22
Lincoln	Troy	Oct. 9-12
Marion	Palmyra	Oct. 9-12
Mercer	Princeton	Sept. 18-21
Moniteau	California	Sept. 18-21
Monroe	Paris	Sept. 18-22
Nodoway	Maryville	Aug. 28-Sept. 1
Pettis	Sedalia	Sept. 4- 8
Platte	Platte City	Aug. 28-Sept. 1
Randolph	Moberly	Sept. 11-14
Reynolds	No fair this year.	
St. Charles	No fair this year.	
St. Clair	Osceola	Oct. 2- 4
St. Francois	Farmington	Sept. 18-20
Saline	Marshall	Sept. 4- 8
Scotland	Memphis	Sept. 25-28
Shelby	Shelbyville	Aug. 28-Sept. 1
Sullivan	Milan	Sept. 5- 8
Taney	No fair this year.	

NEBRASKA,

Buffalo	Sheton	Sept, 19-21
Butler	David City	Sept. 19-22
Clay	Clay Centre	Sept. 18-20
Colfax	Schuyler	Sept. 25-27
Dakota	No fair this year.	
Dixon	Ponca	Sept. 18-20
Dodge	Fremont	Sept. 5- 7
Franklin	Bloomington	Sept. 26-28
Hamilton	Aurora	Sept. 18-20
Howard	No fair this year.	
Johnson	Tecumseh	Sept. 18-21
Lancaster	Lincoln	Sept. 4- 7
Lincoln	No fair this year.	
Madison	Madison	Sept. 25-27
Nance	Fullerton	—
Otoe	No fair this year.	
Platte	Columbus	Sept. 18-21
Red Willow	Indianola	Oct. 3- 5
Richardson	Salem	Sept. 18-21
Saline	Crete	Aug. 29-Sep. 1
Sarpy	Papillion	Sept. 26-29
Saunders	Wahoo	Oct. 2- 4
Thayer	No fair this year.	
Valley	Ord	Sept. 25-27
Washington	No fair this year.	
York	York	Sept, 25-28

NEW JERSEY.

Atlantic	Hammonton	—
Bergen and Passaic	Hohokus	Sept. 25-27
Burlington	Mt. Holly	Oct. 9-12
Camden	No fair this year.	
Cape May	No fair this year.	
Cumberland	Bridgeton	Sept. 5- 6
Essex	No fair this year.	
Gloucester	No fair this year.	
Hunterdon	Flemington	Sept. 25-27
Mercer	No fair this year.	
Middlesex & Union	Plainfield	Sept. 25-29
Monmouth	Freehold	Sept. 11-14
Morris	Morristown	Sept. 11-13
Salem	Woodstown	Sept. 11-13
Somerset	Somerville	Oct. 2- 4
Sussex	Newton	Oct. 2- 5

NEW YORK.

Allegany	Angelica	Oct. 2- 4
Broome	Whitney's Point	Sept. 11-14
Cattaraugus	Little Valley	Sept. 3- 6
Chautauqua	Jamestown	Sept. 4- 7
Chemung	Elmira	Oct, 2- 5
Chenango	Norwich	Sept. 25-27
Clinton	No fair this year.	
Columbia	Hudson	Sept. 25-27
Cortland	Cortland	Sept. 11-13
Delaware	Delhi	Sept. 11-13
Dutchess	Washing'n Hol'w	Sep. 18-21
Erie	Hamburg	Sept. 25-28
Essex	Westport	Sept. 10-12
Franklin	Malone	Sept. 26-28
Fulton	Johnstown	Sept. 4- 6
Genesee	Batavia	Sept. 20-22
Greene	Cairo	Sept. 5- 7
Herkimer	Herkimer	Sept. 10-13
Jefferson	Watertown	Sept. 18-20
Lewis	Lowville	Sept. 11-14
Livingston	Genesee	Oct. 3- 4
Monroe	Rochester	Oct, 2- 5
Montgomery	Fonda	Sept. 11-13
Niagara	Lockport	Sept. 27-29
Oneida	Rome	Sept. 17-21
Onondaga	Syracuse	Sept. 18 21
Ontario	Canandaigua	Sept. 25-27
Orange	Middletown	Sept. 18-21
Orleans	Albion	Sept. 27-29
Oswego	Mexico	Sept. 11-13
Otsego	Cooperstown	Sept. 24-27
Putnam	Carmel	Sept. 11-14
Queens	Mineola	Sept. 25-27
Rensselaer	Lansingburgh	Sept. 11-14
Rockland	New City	Oct. 1- 3
St. Lawrence	Canton	Sept. 11-13
Saratoga	Ballston Spa	Sept. 11-14
Schoharie	Schoharie	Oct. 2- 4
Schuyler	Watkins	Oct. 3- 5
Seneca	Waterloo	Sept. 26-28
Steuben	Bath	Sept. 25-28
Suffolk	Riverhead	Oct. 2- 4
Sullivan	Monticello	Oct. 2- 4
Tioga	Owego	Sept. 11-13
Tompkins	Ithaca	Sept. 25-27
Ulster	No fair this year.	
Washington	Sandy Hill	Sept. 4- 7
Wayne	Lyons	Sept. 24-27
Westchester	No fair this year.	
Wyoming	Warsaw	Sept. 19-20
Yates	Penn Yan	Oct. 2- 4

NORTH CAROLINA.

Anson	Wadesboro	Nov. 13-16
Cabarrus	Poplar Tent	Aug. 8- 9
Edgecomb	Tarboro	Oct. 31-Nov. 3
Forsyth	Winston	Aug. 30-31
Guilford	New Garden	Oct. 24
Halifax	Halifax	Nov. 5- 8

OHIO.

Allen	Lima	Sept. 25-28
Ashtabula	Jefferson	Sept. 25-28
Athens	Athens	Oct. 3- 5
Auglaize	Wapakoneta	Oct. 2- 5
Belmont	St. Clairsville	Sept. 5- 7
Brown	Georgetown	Oct. 2- 5
Butler	Hamilton	Oct. 1- 5
Carroll	Carrollton	Oct. 2- 4
Champaign	Urbana	Aug. 28-31
Clarke	Springfield	Aug. 28-31
Clermont	Owensville	Sept. 5- 7
Clinton	Wilmington	Aug. 14-17
Columbiana	New-Lisbon	Sept. 26-28
Coshocton	Coshocton	Oct. 9-12
Crawford	Bucyrus	Sept. 25-28
Cuyahoga	Chagrin Falls	Sept. 11-13
Darke	Greenville	Sept. 10-14
Defiance	Defiance	Sept. 25-28
Erie	Sandusky	Sept. 24-28
Fairfield	Lancaster	Oct. 10-13
Fulton	Wauseon	Sept. 18-21
Gallia	Gallipolis	Sept. 18-21
Geauga	Burton	Sept. 17-20
Greene	Xenia	Sept. 12-14
Guernsey	Washington	Sept. 26 28
Hamilton	Carthage	Sept. 4- 7
Hancock	Findlay	Oct. 3- 6
Harrison	Cadiz	Oct, 3- 5
Henry	No fair this year.	
Hocking	Logan	Oct. 2- 5
Huron	Norwalk	Sept, 18-21
Jackson	No fair this year.	
Jefferson	Smithfield	Sept. 26-28
Knox	No fair this year.	
Lake	Painesville	Sept. 25-28
Lawrence	Ironton	Sept. 11-14
Licking	Newark	Oct. 2- 5
Logan	Bellefontaine	Oct. 2- 5
Lorain	Elyria	Sept. 25-28
Madison	No fair this year.	
Mahoning	Canfield	Oct. 2- 4
Marion	Marion	Oct. 2- 5
Medina	Medina	Sept. 11-13
Meigs	Rock Springs	Sept. 26-28
Miami	Troy	Oct. 2- 5
Monroe	Woodsfield	Sept. 18-20
Montgomery	Dayton	Sept. 24-28
Morgan	McConnellsville	Sept, 18-21
Morrow	Mt. Gilead	Oct. 9-12
Muskingum	Zanesville	Sept. 11-14
Ottawa	Port Clinton	Oct. 2- 5
Paulding	Paulding	Oct. 2- 5
Perry	New Lexington	Sept. 26-28
Pickaway	Circleville	Sept. 18-21
Pike	No fair this year.	
Portage	Ravenna	Sept. 26-28
Preble	Eaton	Sept. 25-29
Putnam	Ottawa	Oct. 9-12
Richland	Mansfield	Sept. 25-28
Ross	Chillicothe	Aug. 14-17
Sandusky	Fremont	Sept. 25-28
Seneca	Tiffin	Oct 2- 5
Shelby	Sidney	Sept. 25-28
Stark	Canton	Sept. 25-28
Summit	Akron	Oct. 2- 5
Trumbull	Warren	Sept. 12-14
Tuscarawas	Canal Dover	Oct. 2- 5
Union	Marysville	Oct. 2- 5
Van Wert	Van Wert	Sept. 27-29
Vinton	No fair this year.	
Warren	Lebanon	Sept. 18-21
Washington	Marietta	Sept. 12-14
Wayne	No fair this year.	
Williams	Bryan	Sept. 18-20
Wood	Tontogany	Oct. 10-13

PENNSYLVANIA.

Adams	No fair this year.	
Allegheny	Pittsburgh	Sept. 6-Oct. 18
Armstrong	Kittanning	Sept. 11-14
Beaver	Beaver	Sept. 18-21
Bedford	Bedford	Oct. 9-12
Berks	Reading	Oct, 2- 5
Blair	Hollidaysburg	Oct, 9-12
Bradford	Towanda	Oct. 2- 4
Bucks	Doylestown	Oct. 2- 5
Butler	Butler	Sept. 18-20
Cambria	No fair this year.	
Cameron	No fair this year.	
Carbon	Lehighton	Oct. 2- 5
Centre	No fair this year.	
Chester	West Chester	Sept. 20-22
Clearfield	Clearfield	Sept. 18-21
Clinton	No fair this year.	
Columbia	Bloomsburg	Oct. 10-13
Crawford	Meadville	Sept. 11-13
Cumberland	Carlisle	Sept. 25-28
Dauphin	Harrisburg	Oct. 2- 5
Delaware	Elwyn	Oct. 3- 6
Elk	No fair this year.	
Erie	Erie	Sept. 25-28
Fayette	Uniontown	Sept. 25-28
Forest	No fair this year.	
Franklin	No fair this year.	
Greene	Jacksonville	Sept. 26-29
Indiana	Indiana	Oct. 2- 5
Jefferson	Brookville	Oct. 2- 5
Juniata	Port Royal	Oct. 3- 5
Lackawanna	Scranton	Sept. 18-21
Lancaster	Lancaster	Sept. 17-21
Lawrence	New Castle	Sept. 12-15
Lebanon	Lebanon	Oct. 9-12
Lehigh	Allentown	Sept. 25-28
Luzerne	Wyoming	Sept. 11-13
Lycoming	Williamsport	Oct. 2- 4
McKean	Port Allegheny	Oct. 9-11
Mercer	Stoneboro	Sept. 25-27
Mifflin	No fair this year.	
Montour	Washingtonville	Oct. 16-19
Northampton	Nazareth	Oct. 2- 5
Northumberland	Sunbury	Sept. 18-21
Perry	No fair this year.	
Pike	No fair this year.	
Potter	Coudersport	Sept. 25-27
Schuylkill	Orwigsburg	Sept. 25-28
Snyder	Selins' Grove	Oct. 11-13
Somerset	Somerset	Sept. 25-27
Sullivan	Dushore	Oct. 2- 4
Susquehanna	Montrose	Sept. 19-20
Union	Lewisburg	Oct. 3- 6
Venango	Franklin	Oct. 2- 5
Warren	Sugar Grove	Sept. 11-13
Washington	Washington	Sept. 25-28
Wayne	Honesdale	Oct. 10-12
Wyoming	Tunkhannock	Sept. 26-28
York	York	Oct. 2- 5

RHODE ISLAND.

Bristol	No fair this year.	
Washington	West Kingston	Sept. 18-20

SOUTH CAROLINA.

Anderson	Anderson C. H	Oct. 24-26
Newberry	Newberry	Oct. 17-19
Richland	Columbia	Nov. 13-16
Sumter	Sumter	Nov. 6- 9

TENNESSEE.

Bedford	Shelbyville	Sept. 27-30
Dekalb	Smithville	Sept. 27-29
Dyer	Dyersburg	Oct. 16-20
Gibson	Trenton	Oct. 9-13
Giles	Pulaski	Oct. 2- 6
Greene	Greeneville	Sept. 26-28
Madison	Jackson	Oct. 23-27
Sullivan	Bristol	Sept. 19-21
Tipton	Kerrville	Oct. 23-27
Washington	Jonesborough	Oct. 3- 4

TEXAS.

Harrison	Marshall	Oct. 23-26

VERMONT.

Addison	Middlebury	Sept. 4- 6
Bennington	No fair this year.	
Caledonia	St. Johnsbury	Sept. 18-20
Franklin	Sheldon	Aug. 29-31
Lamoille	Morristown	Sept. 25-27
Orange	Bradford	Sept. 25-27
Rutland	Rutland	Sept. 4- 6
Washington	No fair this year.	
Windsor	Woodstock	Sept. 25-27

VIRGINIA.

Accomack	Locustville	Aug. 28-Sep. 2
Augusta	Staunton	Oct. 23-26
Botetourt	Fincastle	Oct. 30-Nov. 2
Craig	New Castle	Sept. 5- 6
Culpeper	Culpeper C. H.	Oct.
Frederick	Winchester	Oct. 17-20
Nash	Rocky Mount	Oct. 23-26
Roanoke	Roanoke	Oct. 16-19
Rockbridge	Lexington	—
Washington	Abingdon	Sept. 26-28

WEST VIRGINIA.

Berkeley	Martinsburg	Oct. 9-12
Brooke	Wellsburg	Sept. 18-20
Harrison	Clarksburg	Sept. 18-20
Jackson	Jackson C. H.	Oct. 1- 3
Lewis	Weston	Sept. 11-13
Logan	Logan C. H.	Oct. 2- 4
Mason	Point Pleasant	Aug. 28-31

WISCONSIN.

Adams	Friendship	Sept. 25-27
Ashland	No fair this year.	
Barron	Barron	Sept. 17-19
Brown	De Pere	
Buffalo	Alma	
Burnett	Grantsburgh	Sept. 26-28
Calumet	Chilton	
Chippewa	Chippewa Falls	Sept. 11-14
Clark	Neillsville	Sept. 19-21
Columbia	Portage	Sept. 18-21
Dodge	Juneau	Sept. 26-28
Eau Claire	No fair this year.	
Fond Du Lac	Fond Du Lac	Sept. 25-29
Grant	Lancaster	Sept. 26-28
Green	Monroe	Sept. 26-29
Iowa	Dodgeville	Sept. 18-20
Jackson	Black River Falls	Sept. 27-29
Jefferson	Jefferson	Oct. 2- 5
Juneau	Mauston	Oct. 2- 5
Kenosha	Kenosha	Sept. 18-21
La Fayette	Darlington	Sept. 12-14
Langlade	No fair this year.	
Lincoln	No fair this year.	
Marathon	No fair this year.	
Marquette	Westfield	Sept. 26-27
Monroe	Sparta	Sept. 18-20
Outagamie	Hortonville	Sept. 26-28
Ozaukee	Saukville	
Pepin	Durand	Sept. 5- 7
Pierce	Prescott	
Portage	Amherst	Sept. 25-27
Price	No fair this year.	
Racine	Burlington	Sept. 18-21
Richland	Eichland Center	Sept. 26-28
Rock	Janesville	Oct. 2- 5
St. Croix	Hudson	Sept. 12-14
Sauk	Baraboo	
Sheboygan	Sheboygan Falls	Sept. 25-27
Trempealeau	Galesville	Sept. 19-21
Vernon	Viroqua	Sept. 19-21
Walworth	Elkhorn	Sept. 25-28
Waukesha	Waukesha	Oct. 2- 5
Waushara	Wautoma	Sept. 26-28
Winnebago	Oshkosh	Sept. 17-21
Wood	Grand Rapids	Sept. 18-20

Canadian Fairs.

Indus. Ex'n Ass'n.	Toronto	Sept. 11-22
Provincial Exh'n.	Guelph, Ont	Sept. 24-29
Fat Stock Show	Toronto	Dec. 14-15
Canada Dominion	St. John, N. B.	Oct. 2- 5
Canada Western	London	Oct. 1- 3
Nova Scotia	Truro, N. S.	Sept. 25-Oct. 1
Ontario Central	Hamilton, Ont	Oct. 2- 5
Manitoba	Portage, La Fra'e	Oct. 1- 6

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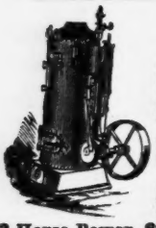

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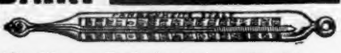

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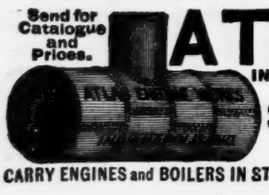

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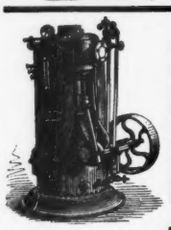

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WILLSBOROUGH, N. Y., Feb. 2, 1883.

The gun came all right. It is a better gun than I expected. *I consider it the best gun I ever saw.* Thanks for your promptness in shipping. ARTHUR W. MOSS.

LEADVILLE, Col., Feb. 2, 1883.

I have given the gun a good trial, and am much pleased with it. I made some very fine shots; some of the boys were with me at times when game was so far off that they gave up the shot, when I would come in with my gun and bring it down. *It is a good bargain*, and a fine gun, and you will hear from me in the future.

A. G. WOOSTER.

DENNY, Pa., Feb. 8, 1883.

I received the gun to-day. It is *satisfactory in every way.* Many thanks. DR. J. M. SCOTT.

MONTICELLO, Ark., March 6, 1883.

I have the pleasure of acknowledging the receipt of the gun, sent me by you as a Premium for obtaining subscriptions to the *American Agriculturist. The gun is in every respect what it was represented to be*, and I must say that I am *very much pleased* with my bargain.

W. J. HAMM.

MORELAND, Ohio, March 24, 1883.

I received the gun all right on the 22d of February. I have given her a thorough trial, and find her to be *a very strong shooter.* ALFRED JAMES.

HONESDALE, Pa., April 3, 1883.

The gun received safely, and am *very highly pleased* with it. I consider it a most excellent one in every respect. Please accept my thanks for your prompt and honest way of doing business. WM. T. BUTLER.

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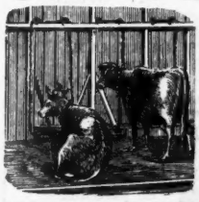

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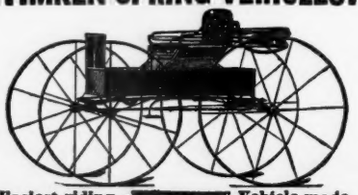

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